Manitoba
Energy and Mines
Geological Services

Mineral Deposit Series

Report No. 6

Mineral Deposits and Occurrences in the Lynn Lake Area, NTS 64C/14

by D.A. Baldwin
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INTRODUCTION

This report and accompanying map (MDS 87-6) are part of a Mineral Deposit Series presenting a uniformly organized and up-to-date collation and analysis of information on mineral occurrences in the Province of Manitoba. The series is intended: (1) to provide explorationists with a geoscientific data base that can be used in mineral exploration; and (2) to provide a technical data base for other government users in resource evaluations, formulation of mineral and land use policies and the initiation of regional development programs.

The mineral deposit report and accompanying map are intended to be active documents that can be updated as new information becomes available. Although revisions of the publication are anticipated, any additional unpublished information may be obtained by contacting the author or Director, Geological Services Branch.

METHODOLOGY

The documentation program was initiated in the main mining districts of the province under the 1984-1989 Mineral Development Agreement. Under this project mineral deposit geologists of the Geological Services Branch have attempted to inspect and evaluate each known mineral occurrence. These site visits ranged from a preliminary half day or less search of an area for old workings, to extensive geological mapping of selected occurrences for a week or more. In addition, for each occurrence the geologists have attempted to synthesize available data from published and unpublished sources. The Manitoba Mineral Inventory Card index and the Cancelled Assessment Files have been used extensively in the preparation of the report. Some occurrences were not located or old workings have been overgrown with vegetation. For these occurrences the information presented has been collected from cancelled assessment files and/or company files.

The information has been collated and maps prepared with the assistance of junior staff geologists and summer assistants. Senior mineral deposit geologists have provided the deposit classifications and text for the report.

Deposit versus Occurrence

Throughout this report mineralization is referred to as a deposit if tonnage and grade figures are known; all other mineralization is referred to as an occurrence.

Massive Sulphide versus Solid Sulphide

The use of 'massive sulphide' in the geological literature is confusing in that it is not always clear whether the authors are referring to a 'massive sulphide deposit' (cf. Sangster, 1972) or a section of sulphide-rich rock. In this publication 'massive sulphide' will be used in reference to a deposit type, i.e. a volcanogenic massive sulphide deposit type, rather than the nature of the mineralization. A volcanogenic or sedimentogenic massive sulphide deposit can contain a sulphide lens that locally contains as little as 10% sulphide minerals by volume. The alteration zones that are an integral part of many sulphide deposits, or the only portion remaining, rarely contain more than 50% sulphide minerals. Consequently, the use of 'solid sulphide' for 75% - 100% and 'near solid sulphide' for 50% - 75% sulphide minerals is adopted in place of the commonly used term 'massive' to describe the textural aspects of a sulphide mineralization.

FORMAT OF MINERAL DEPOSIT MAPS

Location:

One of the incentives spurring the mineral deposit documentation was the absence of accurate location maps for known mineral occurrences. Inaccurate land bases have previously resulted in failure to find old workings, surveys conducted in the wrong areas, and even cancellation of intended surveys by explorationists. Consequently, considerable field time has been spent in establishing occurrence locations and attempts have been made to display exact locations both on the map and in the accompanying report.

The location number on the map is a unique reference number that will be used both in the report and the geologists' unpublished data base. These numbers are consecutive within each 1:50 000 NTS map sheet (but not within portions of a map sheet such as Map MDS87-1).

Deposit Types:

In order to maintain a mineral deposit classification, which will be useful to both explorationists and metallogeneticists, a simplified descriptive classification was selected. This classification is based on the use of common deposit types for the classification of both deposits and occurrences. The classification of mineralization is based on the premise that the mineral explorationist requires information on metals and types of mineralization in an area as well as on the economic deposits (past, present and future producers).

All deposits and occurrences are classified according to the Deposit Type classification in Table 1.

The deposit type displayed on the map represents the mineralization with the greatest economic potential, for example a disseminated narrow chalcopyrite layer is emphasized rather than a much thicker solid pyrite-graphite layer.

Mineralization:

A symbol is used to denote the percentage and/or type of mineralization present. At some localities more than one type of mineralization is present. The type of mineralization displayed in the symbol represents the mineralization with the greatest economic potential as indicated by the deposit type symbol. It should be noted that in the context of this report a "sulphide facies iron formation" is equivalent to a "sulphide stratum". For a discussion of sulphide stratum the reader is referred to Gale *et al.* (1980).

TABLE 1. MINERAL DEPOSIT TYPES

- STRATABOUND MASSIVE SULPHIDE TYPE DEPOSITS
  - a) Volcanic rock-associated
  - b) Sedimentary rock-associated
  - c) Alteration zone associated with a or b
- CHEMICAL SEDIMENT TYPE DEPOSITS
  - a) Sulphide facies iron formation
  - b) Oxide facies iron formation
  - c) Carbonate facies iron formation
  - d) Silicate facies iron formation
  - e) Other chemical sediments
- VEIN TYPE DEPOSITS
  - a) Single vein
  - b) Multiple veins or lenses
  - c) Stockwork
- MAGMATOGENIC TYPE DEPOSITS ASSOCIATED WITH MAFIC/ULTRAMAFIC ROCKS
  - a) Disseminated
  - b) Layered
  - c) Net textured
  - d) Podiform
- DEPOSITS WITH PORPHYRY AFFINITIES
- PEGMATITE TYPE DEPOSITS
- CLASTIC SEDIMENT TYPE DEPOSITS
- REPLACEMENT TYPE DEPOSITS
- DISSEMINATED MINERALIZATION - NOT CLASSIFIED

Host Rocks:

In general, this description refers to the immediately underlying and overlying rock types. When a number of rock types are present in an extensive zone of mineralization, the most common rock types are indicated.

Elements:

This description allows for a maximum of three metals present in increasing order of abundance by volume. The precious and base metals are indicated, if present, in preference to elements such as iron and carbon.

In some instances it has been more efficient on the map and in the report to make reference to an area of mineralization rather than individual deposits or occurrences. All mineralization in the area delineated by a dotted line on the map is referenced in the report under the location number within that area.

FORMAT OF MINERAL DEPOSIT REPORTS

Location:

Each deposit or occurrence description will contain the unique deposit reference number, deposit or claim name where applicable, UTM coordinates, general area description, the reference number of the airphoto on which the deposit can be located and a brief description of method(s) of access.

Exploration Summary:

This section provides an idea of the extent of exploration. The information was compiled from Mineral Inventory Cards, cancelled Assessment Files, and maps and files from the Mining Recording office.

Geological Setting:

In this section the general geology of a deposit or occurrence is described. The information levels of the descriptions vary considerably and depend largely upon the extent of geological mapping during the documentation project. For further details the reader should consult the references cited.

Mineralization:

A detailed description of the mineralogy, host rocks and alteration provides readers with the opportunity to make their own evaluation of the significance of a mineral occurrence or deposit.

Geochemical Data:

In addition to detailed geological mapping around individual mineral occurrences, rock samples were collected from trenches and outcrops in the vicinity of the occurrences. The assay and geochemical data are included in this section. Extensive geochemical data bases are referenced but not reproduced here.

Classification:

In this section the geologist may indicate the reasons for the classification appearing on the Mineral Deposit Map. For those localities containing more than one deposit type, the deposit types not shown on the map are documented here.

References:

These include both published and unpublished sources. For published and assessment report information the reader should obtain desired material directly form the source. The mineral deposit geologists will endeavour to supply copies of unpublished material on a deposit by deposit basis. References listed at the end of each occurrence description may also include sources of additional information not directly cited in the text.

Abbreviations:

A.F.	Assessment File
C.B.	Claim Block
cm	Centimeters
C.N.R.	Canadian National Railway
DDH	Diamond drill hole(s)
EM	Electromagnetic
g/tonne	Grams per tonne
HLEM	Horizontal Loop electromagnetic
H.B.E.D.	Hudson Bay Exploration and Development Co. Ltd.
Hwy	Highway
Inc.	Incorporated

km	kilometres
Ltd.	Limited
m	metres
mm	millimetres
N.	North
oz/ton	troy ounces per ton
ppb	parts per billion
ppm	parts per million
S.	South

Conventional symbology is used for minerals and elements

ACKNOWLEDGEMENTS

Throughout the five year term of the project junior staff geologists and senior geological assistants participated in: 1) collection of field data; 2) extracting data from cancelled assessment files; 3) data compilations; 4) directing of field camps; and 5) preparation of summary reports published in annual Report of Field Activities. Many students assisted the senior geological assistants during the field work component of the project. The contribution made by the senior geological assistants and summer field assistants to the completion of the project has been extremely valuable.

The junior staff geologists and senior geological assistants, in order of responsibility and time devoted to the project, include: Karen Ferreira, David Parbery, Peter Stewart, Sandra Benoit and Kevin Brewer. Summer field assistants in alphabetical order, include; Tracy Angel, Sandy Barham, Brian Carlson, Cam Fehr, Gordon Foote, Barbara King, John Leluck, John Luskewitz, John Lutz, Adrian Michielsen, Joanne Mitchell, Alain Proulx and Sherry Lynn Punak.

A special thank you is extended to the staff of Sherritt Gordon Mines Ltd. in Lynn Lake (now LynnGold Resources Incorporated) and Manitoba Mineral Resources Ltd. for allowing access to, and permission to publish data contained in company records.

Some of the figures that appear in this report of the Mineral Deposits Series have been reproduced from previously published documents. However, most of the figures have been prepared by Lidia Ghobrial and Karen Ferreira. David McShane, Manitoba Energy and Mines, Cartographic Services, drafted the accompanying map. Leah Chudy, Diana Kircz and Shirley Weselak typed the manuscript. The manuscript was reviewed by G.H. Gale and W.D. McRitchie.

GENERAL GEOLOGY OF AREA 64C/14

The geological base for the mineral deposit map sheet 64C/14 is taken from 1:50 000 scale geological map GP80-1-1 (Gilbert et. al., 1980). This map includes data obtained from 1 inch to 1500 feet scale mapping of Bateman (1945), 1 inch to 1 mile scale mapping by J.D. Allan and J.D. Bateman (Milligan, 1960) and 1 inch to 2000 feet scale mapping by Emslie and Moore (1961). The area is underlain by metavolcanic and volcaniclastic metasedimentary rocks of the Wasekwan Group, clastic sedimentary rocks of the Sickle Group, pre- and post-Sickle Group mafic to felsic intrusive rocks and greywacke migmatite and layered to massive amphibolite that are probably equivalent to Wasekwan Group rocks (Gilbert et. al., 1980)

The Wasekwan Group consists predominantly of basaltic to andesitic flows and volcaniclastic metasedimentary rocks, and felsic flows and pyroclastic rocks, all of which are of Proterozoic age (Baldwin et. al., 1987). These are the main host rocks to mineralization in the Lynn Lake area. The Sickle Group comprises conglomerate and sandstone derived from a granitic and volcanic terrane. It rests unconformably on the Wasekwan Group and pre-Sickle intrusive rocks (Milligan, 1960; Gilbert et. al., 1980).

Wasekwan Group rocks and pre-Sickle Group intrusive rocks underlie the southeast half of the map sheet. The northwest half is largely covered with glacial deposits but, most bedrock outcrops are greywacke migmatite of probable Wasekwan age and conglomerate and sandstone that may be either Wasekwan or Sickle Group rocks. Pre-Sickle Group intrusive rocks intruded the Wasekwan Group metavolcanic and volcaniclastic metasedimentary rocks such that the supracrustal rocks form two physically separated east to northeast trending, belts of metavolcanic and volcaniclastic metasedimentary rocks (Gilbert et. al., 1980). The two belts contain similar lithologies but, high Mg-Cr basalts and high-Alumina basalts occur only in the northern belt (Gilbert *et al.*, 1980; Syme, 1985).

The rocks have been metamorphosed to amphibolite grade and have been isoclinally folded and faulted (Gilbert et. al., 1980; Milligan, 1960). The Johnson Shear Zone, a prominent structural feature that has several gold occurrences associated with it, occurs in the extreme southeast corner of the map sheet. The largest felsic volcanic body in the map sheet, the Lynn Lake Rhyolitic Complex (Baldwin, 1983), is host to Zn-Cu volcanogenic massive sulphide deposits. Ni-Cu deposits are hosted by the Lynn Lake Gabbro. Wasekwan Group volcanic and volcaniclastic metasedimentary rocks are the host to mineralization of differing genesis. Pre-Sickle Group intrusive rocks host vein-type mineralization.

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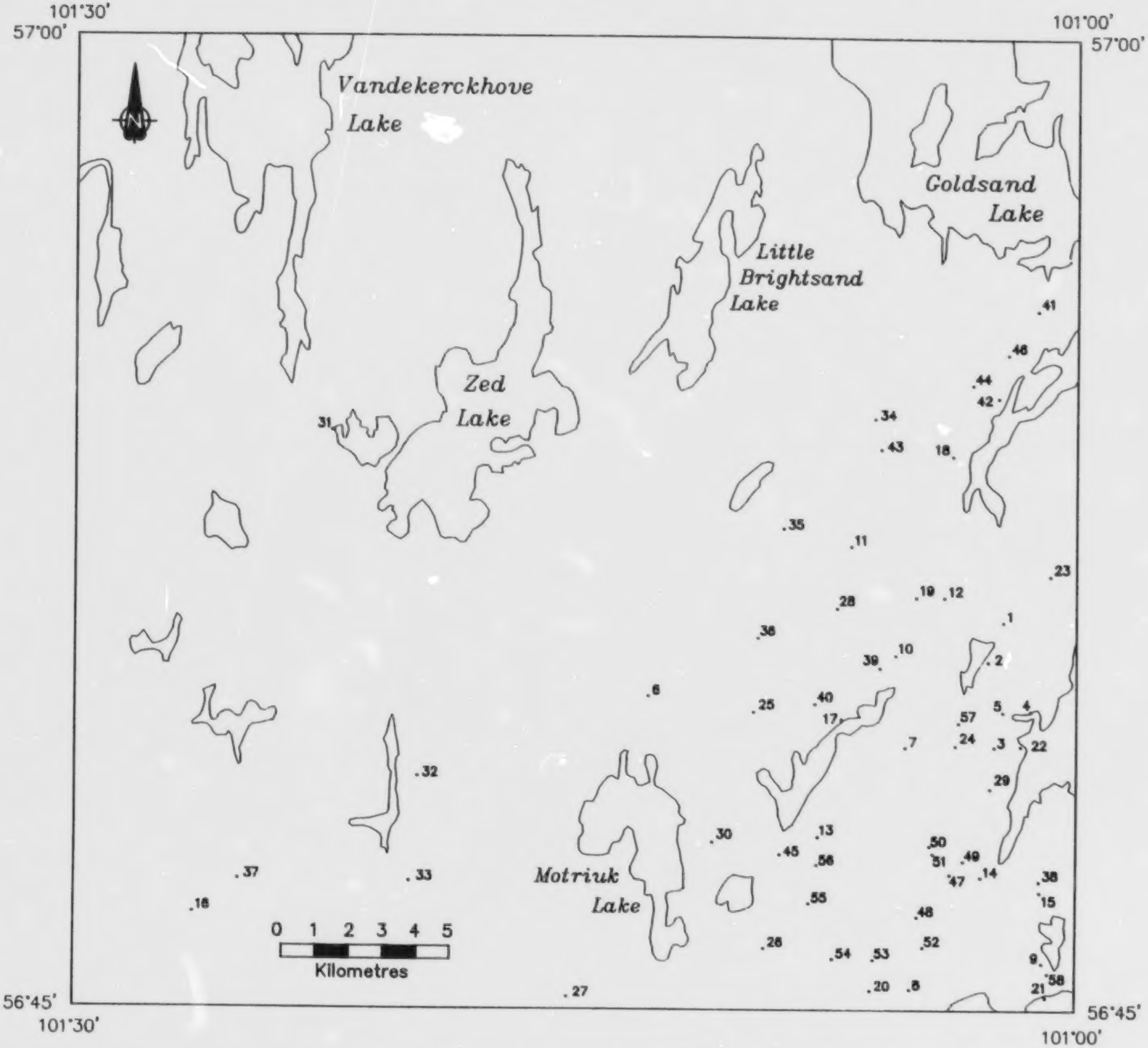
TABLE 2: UTM COORDINATES FOR MINERAL DEPOSITS/OCCURRENCES
64C/14

MINERAL OCCURRENCE NUMBER	UTM NORTHING (METRES)	UTM EASTING (METRES)	MINERAL OCCURRENCE NUMBER	UTM NORTHING (METRES)	UTM EASTING (METRES)
1	6302694	376249	30	6296193	367638
2	6301524	375803	31	6308281	356321
3	6299010	376009	32	6298111	358886
4	6300080	377105	33	6295013	358658
5	6300035	376246	34	6308681	372417
6	6300493	365718	35	6305448	369722
7	6298996	373349	36	6302220	368965
8	6291869	373523	37	6295059	353559
9	6292641	377461	38	6295053	377362
10	6301706	373064	39	6301336	372598
11	6304925	371730	40	6300271	370665
12	6303420	374510	41	6311886	377266
13	6296352	370765	42	6309296	376111
14	6295172	375621	43	6307785	372606
15	6294726	377381	44	6309685	375339
16	6294068	352216	45	6295838	369643
17	6299821	371455	46	6310583	376389
18	6307583	374742	47	6295249	374709
19	6303420	373679	48	6293999	373737
20	6291825	372361	49	6295649	375104
21	6291640	377578	50	6296090	374105
22	6299035	376800	51	6295856	374203
23	6304063	377668	52	6293104	373924
24	6299048	374852	53	6292739	372440
25	6300030	368849	54	6292759	371233
26	6293072	369184	55	6294401	370516
27	6291617	363344	56	6295535	370746
28	6303096	371317	57	6299720	374944
29	6297786	375893	58	6292346	377637


101°30'
57°00'
101°00'
57°00'
Vandekerckhove Lake
Goldsand Lake
Little Brightsand Lake
Zed Lake
Motriuk Lake
0 1 2 3 4 5
Kilometres
56°45'
101°30'
56°45'
101°00'
41
46
44
42
34
43
18
31
35
11
23
19
12
28
1
36
10
39
2
6
40
25
17
57
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4
7
24
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22
32
29
30
13
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50
51
49
47
14
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8
21
27

Figure 1: Index map for mineral deposits and occurrences in the Lynn Lake area, NTS 64C/14.

MINERAL OCCURRENCE DESCRIPTIONS:NTS 64C/14

LOCATION: 1

NAME: "A" MINE
UTM: 6302694N 376249E
ACCESS: Through the main gate at LynnGold mill site in Lynn Lake.

AREA: Town of Lynn Lake.
AIRPHOTO: A24142-172

EXPLORATION SUMMARY:

The information presented here is summarized from Pinsent (1980) and from Mineral Inventory Card 64C/14 Ni 1. It includes material that pertains to the "A" mine and the Farley mine (location 2) because the sulphide bodies that make up these two mines were discovered as a result of the same exploration program. The "A" mine and the Farley mine served for the development and extraction of ore from 16 of 20 sulphide bodies discovered in the "A" plug at Lynn Lake (Fig. 1-1, 1-2). A detailed account of the exploration for, and development of, the sulphide bodies is given by Pinsent (cf. p. 64, 1980).

Sulphide mineralization associated with the "A" orebody was discovered in outcrop by Austin McVeigh in September of 1941 while prospecting for the source of Ni-Cu sulphide-bearing float that he had located in the vicinity of Lynn Lake. The "Elb" group of 353 contiguous claims was staked in an area that included the "A" plug by Sherritt Gordon Mines Ltd. in 1945. Following a magnetic survey and diamond drilling the "A" orebody was discovered and the "A" shaft was sunk in 1947. During the development of the "A" mine and drill hole testing of additional magnetic anomalies in the "A" plug the upper and lower B, C, E, upper and lower F and the G sulphide bodies were located. By 1952 development and exploration drilling had outlined in excess of 12.7 million tonnes of ore averaging 1.223% Ni and 0.618% Cu (Sherritt Gordon Mines Ltd., Annual Report, 1952). In 1954 the "A" mine was in full production. Continued exploration of magnetic anomalies from surface and underground workings outlined additional sulphide bodies and the Farley mine shaft was collared in 1955 but the mine did not produce until 1961.

Between 1954 and 1969 the "A" mine produced from the A, C, upper D, lower D, E and J orebodies; production from the "A" mine ceased in 1969. The Farley mine produced from 1961 to mine closure in 1976 from the upper B, lower B, upper F, lower F, upper K, lower K, upper M, upper D, lower D and P orebodies. When production ceased from sulphide bodies in the "A" plug, the lower D, G, H, M and N bodies were subeconomic and remain either underdeveloped or selectively mined. Total production from the developed orebodies in the "A" plug ("A" mine plus Farley mine) was 20 151 146 tonnes with an average grade of 1.023% Ni and 0.535% Cu.

GEOLOGICAL SETTING:

The geological setting, structure, petrography and geochemistry of the "A" plug has been treated in detail by Pinsent (1980). The following is a summary of the material that is pertinent to the setting of the Ni-Cu sulphide bodies in the "A" plug.

The "A" plug is a 1.5 x 3 km, kidney-shaped, near vertical composite igneous pluton that intruded Wasekwan Group metavolcanic and metasedimentary rocks with minor discordance (Fig. 1-1). Inclusions of Wasekwan Group supracrustal rocks are schistose and some show evidence of folding prior to intrusion of the plug. The plug largely comprises gabbro, diorite and amphibolite intruded by irregular shaped bodies of peridotite, diorite and quartz-hornblende diorite (Fig. 1-1). At the plug margin there is a 3-5 m wide zone of sheared gabbro. The orebodies occur in the western part of the plug where they are spatially associated with the more mafic to ultramafic rocks that post date the emplacement of the more abundant gabbro and diorite (Fig. 1-1).

Following emplacement of the vertical sulphide ore pipes several stages of reverse block faulting affected the "A" plug (cf. Fig. A1-6, A1-10, A1-17, A1-23; Pinsent, 1980). This faulting resulted in most of the orebodies being strongly or completely disjointed. In addition, sections of the plug moved to the southwest to override Wasekwan Group rocks at the southwest margin of the plug. Some faults have acted as the locus of intrusion of quartz-feldspar porphyry and diabase dyke swarms. (cf. Fig. 2, 3; Pinsent, 1980).

MINERALIZATION:

Comprehensive detailed descriptions, including mine level plans and vertical cross-sections, for ten of the Ni-Cu orebodies in the "A" plug have been presented by Pinsent (cf. Appendix 1, 1980). The information presented in the following summary has been extracted from Pinsent (1980) to give the reader a general overview of the nature of the mineralization in the "A" plug.

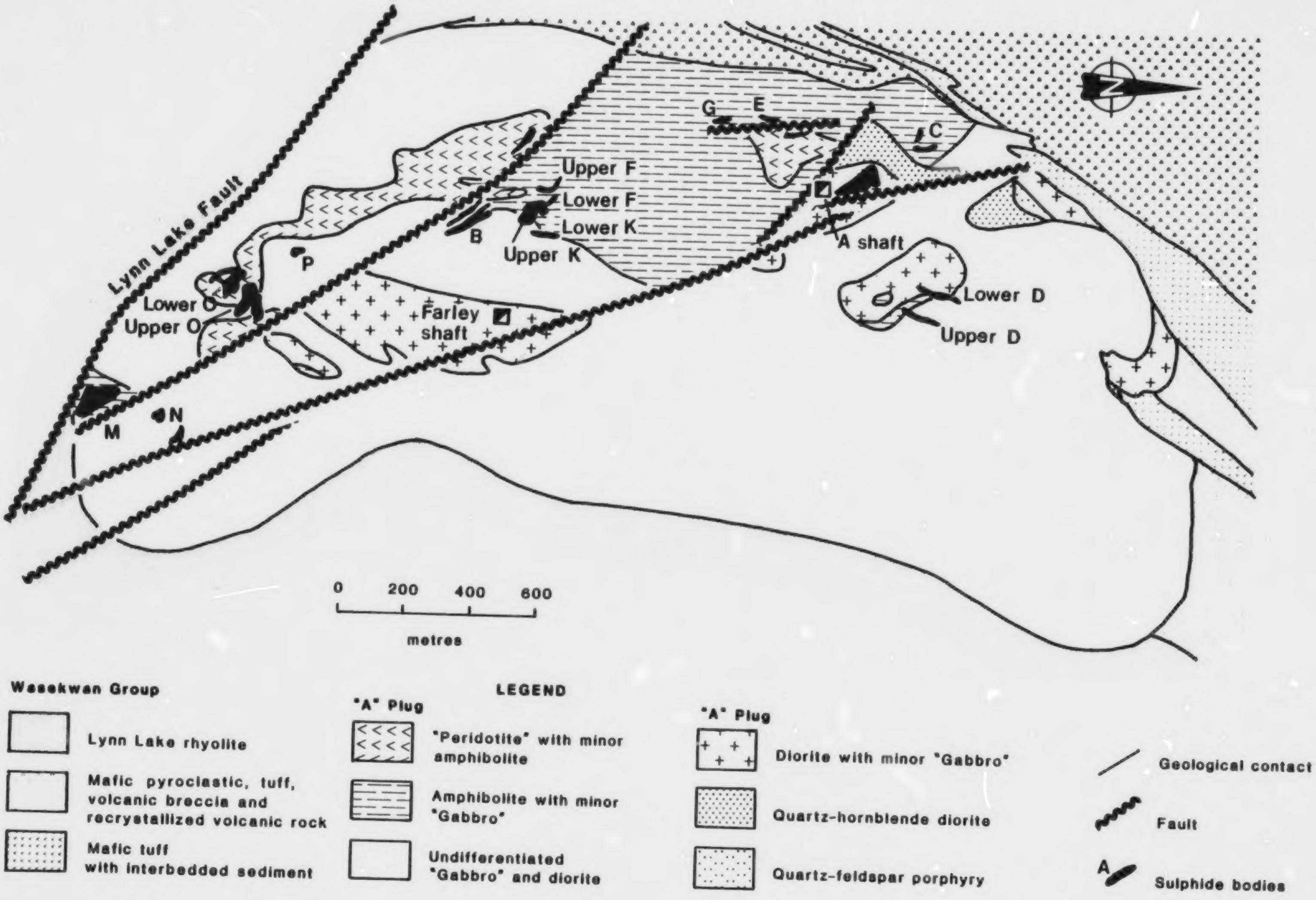

N
Lynn Lake Fault
G
E
C
Upper F
Lower F
Lower K
Upper K
B
P
A shaft
Lower D
Upper D
Lower O
Upper O
Farley shaft
M
N
0
200
400
600
metres
LEGEND
Wasekwan Group
Lynn Lake rhyolite
Mafic pyroclastic, tuff, volcanic breccia and recrystallized volcanic rock
Mafic tuff with interbedded sediment
"A" Plug
"Peridotite" with minor amphibolite
Amphibolite with minor "Gabbro"
Undifferentiated "Gabbro" and diorite
"A" Plug
Diorite with minor "Gabbro"
Quartz-hornblende diorite
Quartz-feldspar porphyry
Geological contact
Fault
A
Sulphide bodies

Figure 1-1: Geological surface plan of the "A" plug with Ni-Cu orebodies projected to surface (after Pinsent, 1980).

The orebodies have a deformed lensoid or subcircular, restricted outline in plan section and are extended in vertical section (Fig. 1-1, 1-2). Some orebodies occur in ultramafic to mafic rocks that intruded the "A" plug host gabbro and others occur directly within "A" plug host gabbro. Ore mineralogy comprises a primary assemblage of pyrrhotite, pentlandite and chalcopyrite with small amounts of pyrite and trace amounts of sphalerite, magnetite and ilmenite. Local supergene alteration in near-surface ores and on fault structures resulted in secondary marcasite, violarite, smythite, bravoite, goethite, millerite and hematite.

On the basis of texture, morphology, composition and/or mode of occurrence the ores are classified into five ore-types: (1) disseminated ore; (2) plutonic breccia ore; (3) sulphide breccia ore; (4) solid sulphide vein ore; and (5) siliceous felsite ore. The ore-types occur in different proportions in each of the orebodies. Disseminated ore is characterized by interstitial crystals of fine grained sulphide, or 0.5 to 1.0 cm blebs of sulphide uniformly distributed in mafic and ultramafic rocks that intruded the "A" plug host gabbro. Plutonic breccia ore comprises subangular to subrounded, 0.1 to 10 m, xenoliths of allochthonous, barren, diorite, gabbro, amphibolite and peridotite, and less common inclusions of disseminated ore and siliceous felsite ore, in a sulphide-bearing silicate matrix. This ore-type occurs at the interface between mineralized intrusive rocks and barren "A" plug host gabbro. Sulphide breccia ore consists of sulphide cemented breccia and occurs either as discrete veins cutting "A" plug host rocks or as pods and lenses within orebodies. Solid sulphide vein ore consists of solid sulphide that occurs as veins and pods that cross-cut ore-types 1, 2 and 3. Siliceous felsite ore comprises aphanitic to fine grained quartz and plagioclase with variable amounts of micro-vein sulphide. It appears to form early veins within and adjacent to ore-types 1, 2 and 3 as well as inclusion material in these ore-types. In any one orebody the ore-types are in part gradational one to the other. Disseminated ores grade into plutonic breccia ores and liquid segregation from both has led to the development of sulphide breccia ore and solid sulphide vein ore. Hydrothermal mobilization of sulphide resulted in local concentration of sulphide in recrystallized plutonic breccia ores. Hydrothermal activity is also responsible for mobilization of sulphide into veins in "A" plug host gabbro and for the formation of siliceous felsite veins in "A" plug host gabbro, and for the formation of siliceous felsite veins peripheral to orebodies, as well as, the silica contamination found locally in sulphide breccia ore and solid sulphide veins and lenses.

Although the terminology "plutonic breccia ore" and "sulphide breccia ore" may not be the best descriptors for these ore-types, they are used here for consistency with terminology that was used at the "A", Farley and EL mines by Sherritt Gordon Mines Ltd..

GEOCHEMICAL DATA:

The cut-off grade in the "A" mine and the Farley Mine varied during the years of production and with the use of different production techniques. The undiluted reserve tonnages and grades in Table 1-1 appear to be reasonable estimates of metal contents prior to development (Pinsent, 1980).

Table 1-1: Maximum Tonnages and Grades in "A" Plug Orebodies (from Pinsent, 1980)

"A" Mine Orebody	Tonnes	Ni%	Cu%	Ni/Cu
A	4 812 662	1.065	0.550	1.94
C	1 330 279	0.759	0.491	1.55
D (upper)	871 186	1.564	0.743	2.10
D (Lower)	1 448 933	0.668	0.348	1.92
E	926 235	1.055	0.484	2.18
G	197 644	0.95	0.39	2.43
J	418 431	1.09	0.47	2.32

CLASSIFICATION:

The orebodies in the "A" plug are classified as disseminated magmatogenic type deposits associated with mafic/ultramafic rocks. The following genetic interpretation of the ore-types is summarized from Pinsent (1980). Ore-types 1 and 3 are considered to be largely magmatic in origin because primary pyroxenes have been found in disseminated ores and in sulphide breccia ores (Hunter, 1950; Vellet, 1963). Some disseminated ores may be hydrothermal as there is evidence for local hydrothermal dispersion of sulphide. Plutonic breccia ores are clearly the result of interaction between an intrusive disseminated ore-bearing magma and host gabbro. The breccia matrix, that grades into disseminated ore, is invariably modified by hydrothermal activity and possible mobilization of the sulphide component. Massive sulphide pods and veins may have formed from: (1) in situ segregation of liquid sulphide, out of ore-types 1 and 3; (2) though hydrothermal mobilization into faults and fractures; or (3) remobilization through deformation. Siliceous felsite ore occurs in veins both peripheral to, and within the ore zones and more commonly as inclusions in sulphide and plutonic breccia. Siliceous felsite veins appear to have developed by hydrothermal processes prior to the main period of ore pipe intrusion.

REFERENCES:

Hunter, H.E.

1950: Geological investigations of the Lynn Lake basic intrusive body, northern Manitoba; University of Manitoba, M.Sc. thesis (unpublished).

Mineral Inventory Card 64C/14 Ni 1

Manitoba Energy and Mines, Minerals Division.

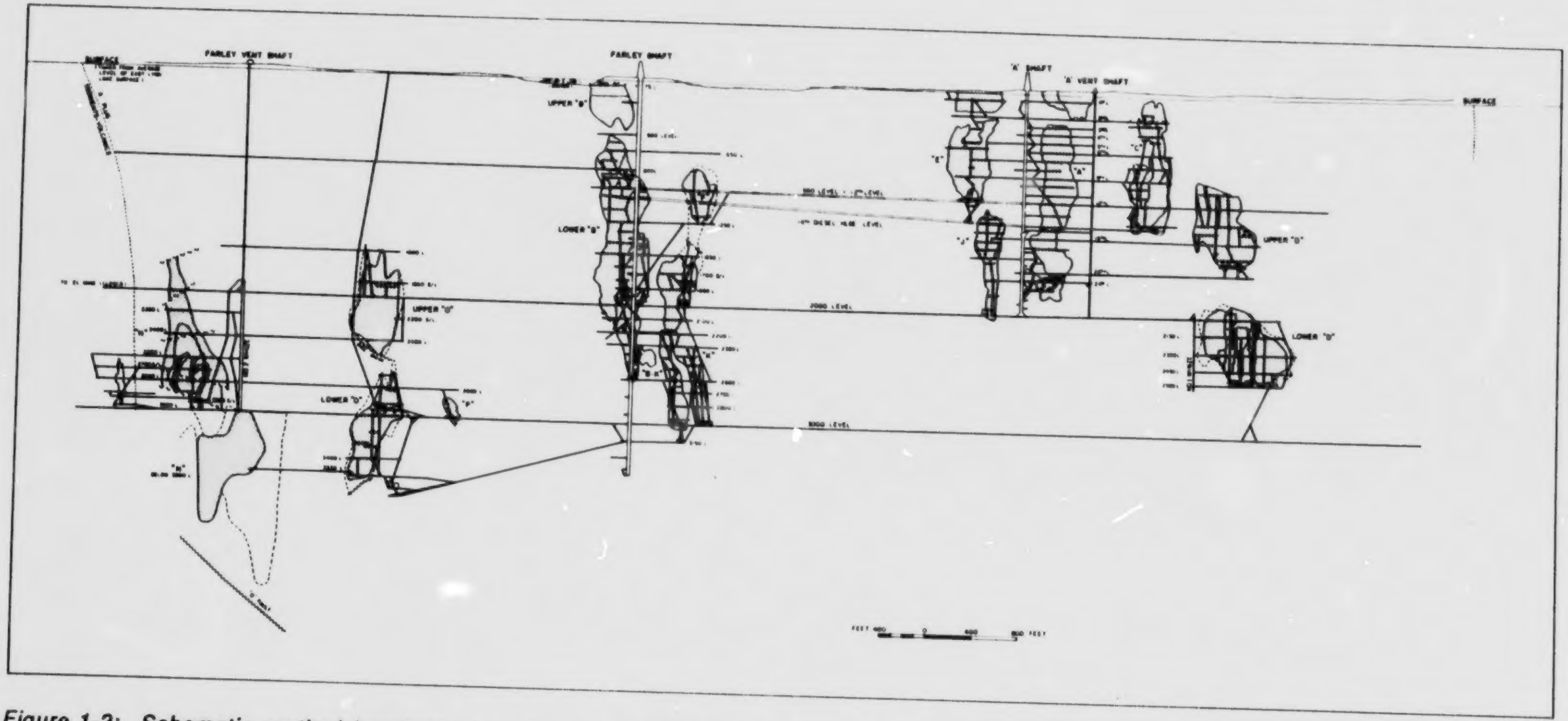

SURFACE
FARLEY VENT SHAFT
FARLEY SHAFT
'A' SHAFT
'A' VENT SHAFT
SURFACE
UPPER "B"
LOWER "B"
"E"
"C"
"A"
"J"
UPPER "D"
UPPER "D"
LOWER "D"
LOWER "D"
"P"
"H"
2000 LEVEL
3000 LEVEL
FEET 400 0 400 800 FEET

Figure 1-2: ***Schematic vertical longitudinal section through the "A" plug showing the "A" and Farley mine workings and orebody outlines (after Pinsent, 1980).***

Pinsent, R.H.

1980: Nickel-copper mineralization in the Lynn Lake gabbro; Manitoba Energy and Mines, Mineral Resources Division, Economic Geology Report ER79-3, 138 p.

Vallet, V.

1963: Geology of the Lynn Lake Ni-Cu deposit; Sherritt Gordon Mines Ltd., Company Report (unpublished).

LOCATION: 2

NAME: FARLEY MINE
UTM: 6301524N 375803E
ACCESS: Through the main gate at LynnGold mill site in Lynn Lake.

AREA: Town of Lynn Lake.
AIRPHOTO: A24142-174

EXPLORATION SUMMARY:

The orebodies of the Farley mine were discovered as a result of magnetometer surveys and diamond drilling during exploration of the "A" plug and development of the "A" mine (Location 1). Production from the Farley mine commenced in 1961 and ceased in 1976. During these years production of Ni-Cu ores was from the upper B, lower B, upper F, lower F, K, upper N, lower N, O and P orebodies (Fig. 1-1, 1-2).

GEOLOGICAL SETTING:

The geological setting of the orebodies that constitute the Farley mine is the same as that for the orebodies that make up the "A" mine (Location 1).

MINERALIZATION:

The features of the Ni-Cu mineralization at the Farley mine are the same as those at the "A" mine (Location 1).

GEOCHEMICAL DATA:

The cut-off grade in the "A" mine and the Farley Mine varied during the years of production and with the use of different production techniques. The undiluted reserve tonnages and grades in Table 2-1 appear to be reasonable estimates of metal contents prior to developments (Pinsent, 1980).

Table 2-1: Maximum Tonnages and Grades in "A" Plug Orebodies (from Pinsent, 1980)

Farley Mine Orebody	Tonnes	Ni%	Cu%	Ni/Cu
B	3 879 525	0.738	0.499	1.48
F (Upper)	353 366	0.79	0.54	1.46
F (Lower)	47 582	1.19	0.76	1.56
K	1 694 850	1.336	0.978	1.37
N (Upper)	3 556 730	0.84	0.38	2.21
N (Lower)	2 021 419	0.67	0.37	1.81
O	4 299 681	0.81	0.35	2.31
P	236 446	1.08	0.69	1.56

CLASSIFICATION:

The orebodies in the "A" plug are classified as disseminated magmatogenic deposits associated with mafic/ultramafic rocks. The following genetic interpretation of the ore-type is summarized from Pinsent (1980). Ore-types 1 and 3 are considered to be largely magmatic in origin because primary pyroxenes have been found in disseminated ores and in sulphide breccia ores (Hunter, 1950; Vellet, 1963). Some disseminated ores may be hydrothermal as there is evidence for local hydrothermal dispersion of sulphide . Plutonic breccia ores are clearly the result of interaction between an intrusive disseminated ore-bearing magma and host gabbro. The breccia matrix, that grades into disseminated ore, is invariably modified by hydrothermal activity and there may be mobilization of the sulphide component. Massive sulphide pods and veins may have formed from: (1) in situ segregation of liquid sulphide, out of ore-types 1 and 3; (2) hydrothermal mobilization into faults and fractures; or (3) remobilization through deformation. Siliceous felsite ore occurs in veins both peripheral to, and within the ore zones and more commonly as inclusions in sulphide and plutonic breccia. Siliceous felsite veins appear to have developed by hydrothermal processes prior to the main period of ore pipe intrusion.

REFERENCES:

Hunter, H.E.
1950: Geological investigations of the Lynn Lake basic intrusive body, Northern Manitoba; University of Manitoba, M.Sc. thesis, unpublished.

Mineral Inventory Card 64C/14 Ni 1
Manitoba Energy and Mines, Minerals Division.

Pinsent, R.H.
1980: Nickel-copper mineralization in the Lynn Lake gabbro; Manitoba Energy and Mines, Mineral Resources Division, Economic Geology Report ER79-3, 138 p.

Vallet, V.
1963: Geology of the Lynn Lake Ni-Cu deposit; Sherritt Gordon Mines Ltd., Company Report (unpublished.)

LOCATION: 3

NAME: EL MINE
UTM: 6299010N 376009E
ACCESS: Via Hwy. 397 to gate entrance to property.
AREA: 3.8 km south of the "A" shaft at Lynn Lake.
AIRPHOTO: A24142-174

EXPLORATION SUMMARY:

The Ni-Cu sulphide orebody in the EL plug was discovered in 1947 following a magnetometer and diamond drill exploration program that also resulted in discovery of sulphide orebodies in the "A" plug (location 1 and 2). Work on the EL shaft began in 1952 and by 1954 the EL mine was in full production. Mining of the EL orebody was from both underground and an open pit. The mine was closed in 1963.

GEOLOGICAL SETTING:

The EL plug is a 500 m diameter (at surface), mafic to ultramafic, composite intrusion (Fig. 3-1) that intruded felsic volcanic rocks of the Lynn Lake rhyolite complex (Gilbert *et al.*, 1980; Pinsent, 1980). The intrusion tapers to a diameter of 200 m over a known vertical depth of 1500 m(Fig. 3-2). The composite nature of the plug is illustrated in plan view at surface and in vertical section by an outer unit of diorite surrounding an inner core of amphibolite and peridotite (Vellet, 1963) that at surface has a diameter of 120 m (Fig. 3-1) decreasing to a diameter of 92 m at a depth of about 920 m (Fig. 3-2). The Ni-Cu sulphide orebody is centrally located in the core zone (Fig. 3-2).

At the contact between the intrusion and the felsic volcanic rocks there is no apparent indication of chilling in the diorite but, garnet and biotite are present in the felsic volcanic rocks as a result of thermal metamorphism (Vellet, 1963). Following emplacement of the Ni-Cu sulphide body the EL plug was cut by a series of faults (Fig. 3-2) that have acted as a control for the intrusion of uralitic diabase dykes (Pinsent, 1980).

MINERALIZATION:

Three of the five ore-types that occur in the sulphide bodies in the "A" plug are present in the EL orebody (Vellet, 1963). These are: 1) disseminated ore; 2) plutonic breccia ore; and 3) sulphide breccia ore. The distribution of the ore-types in the orebody is illustrated in Figure 3-2. Below the 250 m level (7th level Fig. 3-2) the sulphide mineralization consists of subeconomic disseminated sulphide. The mineralogy of the Ni-Cu ore in the EL mine is the same as in the orebodies contained in the "A" plug.

GEOCHEMICAL DATA:

1 732 073 tonnes grading 2.07% Ni and 0.76% Cu.

CLASSIFICATION:

Disseminated magmatogenic deposit associated with mafic/ultramafic rocks.

REFERENCES:

Gilbert, H.P., Syme, E.C. and Zwanzig, H.V.
1980: Geology of the metavolcanic and volcaniclastic metasedimentary rocks in the Lynn Lake area; Manitoba Energy and Mines, Mineral Resources Division, Geological Paper GP80-1, 118 p.

Pinsent, R.H.
1980: Nickel-copper mineralization in the Lynn Lake gabbro; Manitoba Energy and Mines, Mineral Resources Division, Economic Geology Report ER79-3, 138 p.

Vallet, V.
1963: Geology of the Lynn Lake Ni-Cu deposit; Sherritt Gordon Mines Ltd., Company Report (unpublished).

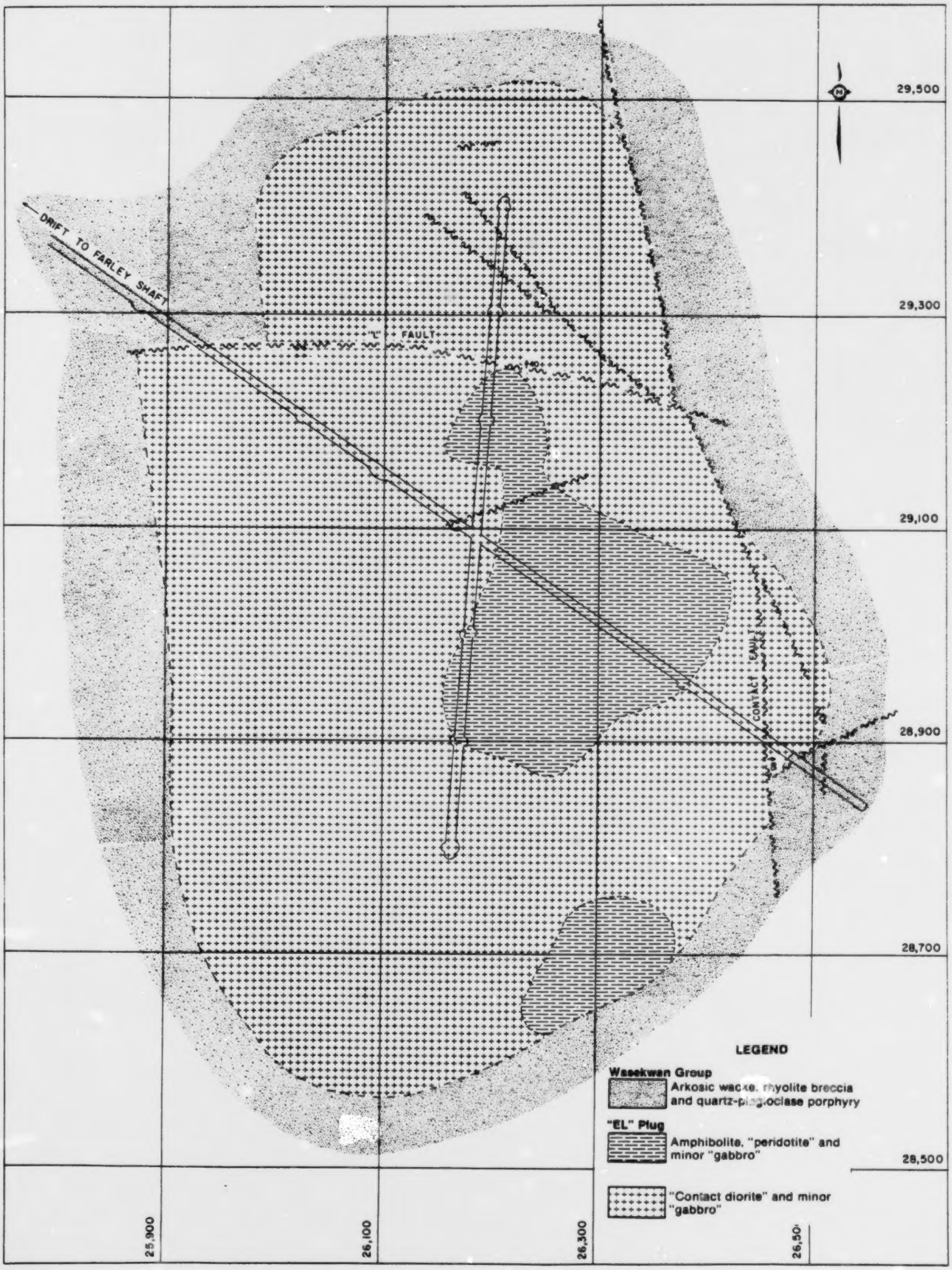
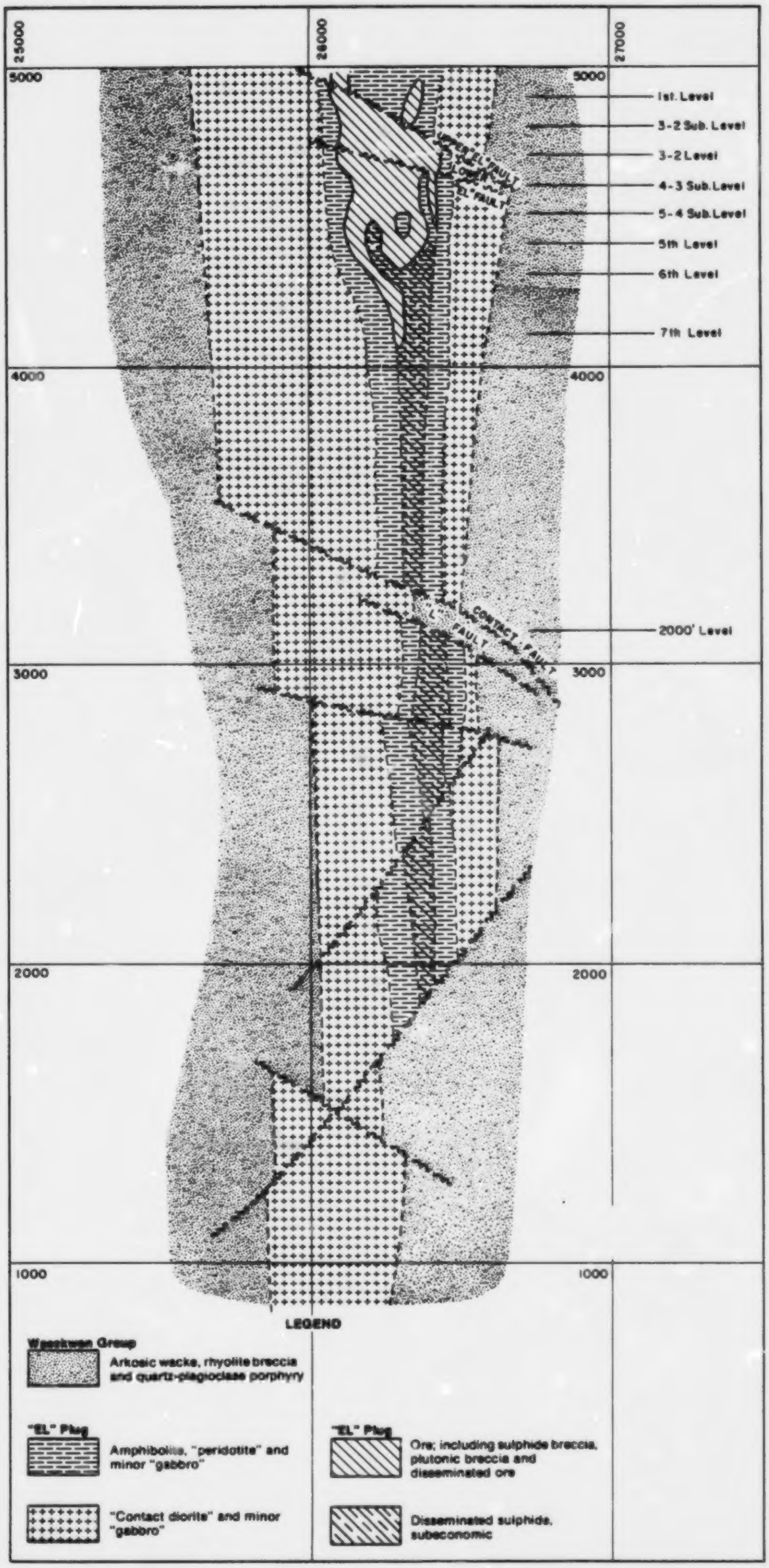

DRIFT TO FARLEY SHAFT
"L" FAULT
CONTACT FAULT
N
29,500
29,300
29,100
28,900
28,700
28,500
25,900
26,100
26,300
26,50
LEGEND
Wasekwan Group
Arkosic wacke, rhyolite breccia and quartz-plagioclase porphyry
"EL" Plug
Amphibolite, "peridotite" and minor "gabbro"
"Contact diorite" and minor "gabbro"

Figure 3-1: Geological plan of the "EL" plug at the 610m level (after Pinsent, 1980).



25000
26000
27000
5000
5000
4000
4000
3000
3000
2000
2000
1000
1000
1st. Level
3-2 Sub. Level
3-2 Level
4-3 Sub.Level
5-4 Sub.Level
5th Level
6th Level
7th Level
2000' Level
"EL" FAULT
"EL" FAULT
CONTACT FAULT
FAULT
LEGEND
Wasekwan Group
Arkosic wacke, rhyolite breccia and quartz-plagioclase porphyry
"EL" Plug
Amphibolite, "peridotite" and minor "gabbro"
"Contact diorite" and minor "gabbro"
"EL" Plug
Ore; including sulphide breccia, plutonic breccia and disseminated ore
Disseminated sulphide, subeconomic

Figure 3-2: Geological section through the "EL" plug and orebody (after Pinsent, 1980).

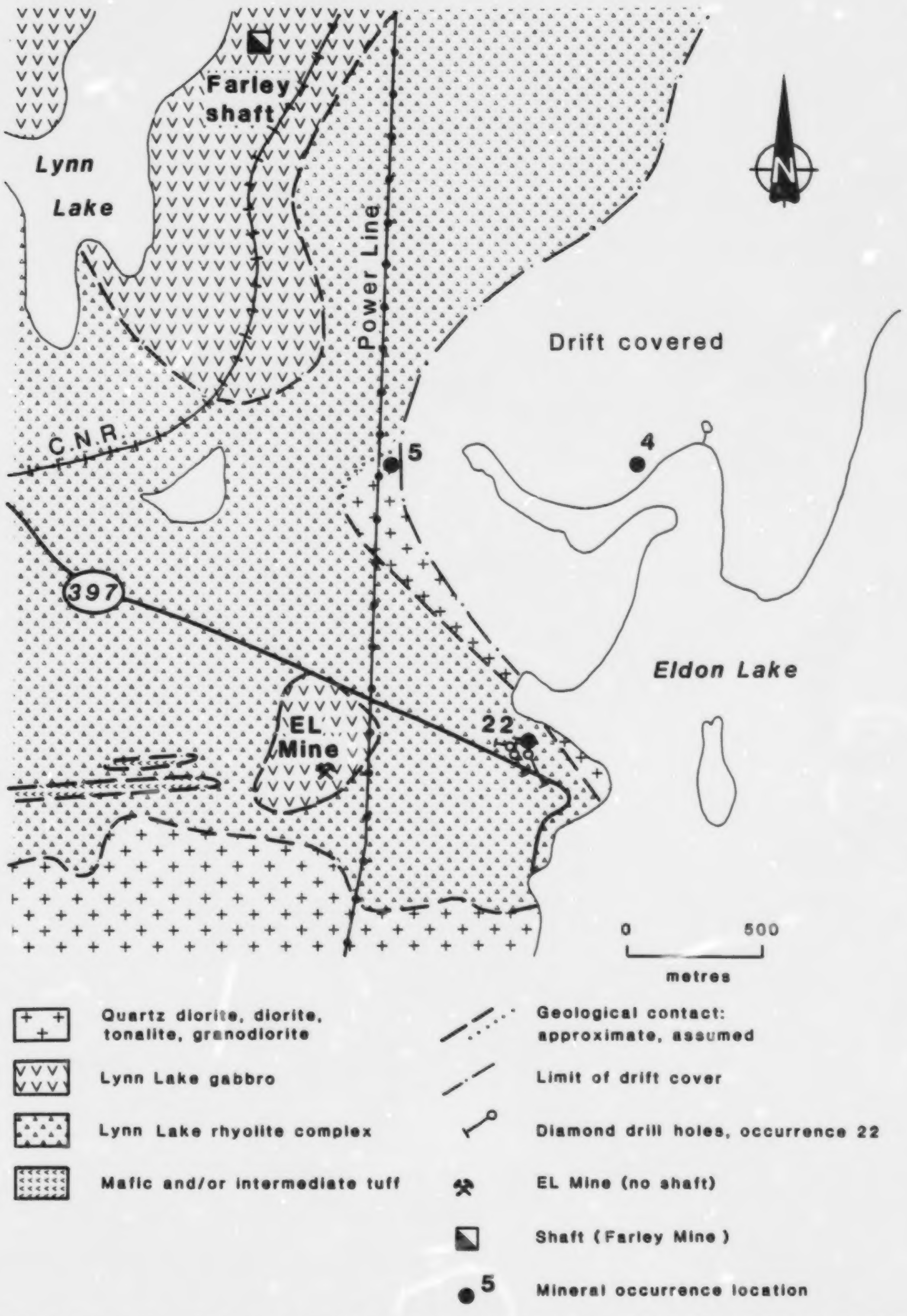

Farley shaft
Lynn Lake
Power Line
Drift covered
C.N.R.
5
4
397
Eldon Lake
22
EL Mine
0
500
metres
Quartz diorite, diorite, tonalite, granodiorite
Lynn Lake gabbro
Lynn Lake rhyolite complex
Mafic and/or intermediate tuff
Geological contact: approximate, assumed
Limit of drift cover
Diamond drill holes, occurrence 22
EL Mine (no shaft)
Shaft (Farley Mine)
5
Mineral occurrence location

Figure 4-1: Geological setting of the area around the FL deposit (Geology modified after Gilbert et al., 1980).

LOCATION: 4

NAME: FL

UTM: 6300080N 377105E

ACCESS: Via boat from Manitoba Energy and Mines expediting base at Eldon Lake or traverse along north side of Lynn River from C.N.R. tracks.

AREA: North side of Lynn River where river drains into Eldon Lake.

AIRPHOTO: A24142-173

EXPLORATION SUMMARY:

The FL group of claims was staked in 1946 and transferred to Gods Lake Gold Mines Ltd. that same year. In 1947 a magnetometer survey of the claim group identified 18 magnetic anomalies, a geological mapping survey was completed and the claims were surveyed. Between 1948 and 1952, 87 DDH were drilled to test some of the magnetic anomalies. In 1952 the claim group was leased to Gods Lake Gold Mines Ltd.. In 1953 and 1954 an electromagnetic survey was conducted and 15 DDH were drilled to test anomalies. The FL deposit is located on the FL 15 claim and has been tested with 32 DDH (Fig. 4-1, 4-2). Other geophysical anomalies on the claim group were tested for sulphide mineralization but the results were not encouraging (A.F. 91023, 91024)..The claims were cancelled in April, 1975 and part of the original claim group was restaked by U. Arsenault for Granges Exploration Ltd. in June, 1975. The ground is presently held by Granges Exploration Ltd.

GEOLOGICAL SETTING:

The area immediately surrounding the FL deposit is covered by swamp and overburden. South and west of the deposit, on the opposite side of the Lynn River, the area is underlain by Wasekwan Group felsic volcanic rocks of the Lynn Lake rhyolitic complex and foliated to massive granite (Emslie and Moore, 1961; Gilbert *et al.*, 1980; Milligan, 1960). North of the deposit, outcrops consist of various felsic volcanic rocks of the Lynn Lake rhyolitic complex and to the east the area is underlain by diorite, quartz diorite and hornblende-and biotite-bearing tonalite (Gilbert *et al.*, 1980; Milligan, 1960).

Drill core and incomplete diamond drill logs (A.F. 91023, 91024) indicate the deposit is hosted in a fine-to medium-grained, blue-grey gneissic tonalite. Granodiorite and diorite dykes occur locally and have sharp to gradational contacts with the gneissic tonalite. Intersections of mafic volcanic rock, intermediate fragmental rocks and mafic to intermediate tuff or sedimentary rocks are common in the drill holes. These intersections are centimetre to several metres in length and are commonly associated with the sulphide mineralization but also occur throughout the intrusion. These volcanic and/or sedimentary rocks are probably inclusions of Wasekwan Group supracrustal rocks.

MINERALIZATION:

Sulphide mineralization consists of pyrrhotite, pyrite and chalcopyrite that occur as disseminated grains and stringers and veins of solid sulphide up to 2 m wide in drill core, in tonalite and commonly in inclusions of supracrustal rock. Contacts between the sulphide stringers and veins and the immediate host rock are sharp and randomly oriented with respect to the drill core axis. Chalcopyrite most commonly occurs at the margins of pyrrhotite veins.

GEOCHEMICAL DATA:

The deposit consists of 450 000 tonnes grading 0.9% Cu and 2.2% Zn (Mineral Inventory Card 64C/14 Cu1). In some drill logs assay values of up to 11 g/tonne are reported (A.F. 91023, 91024).

CLASSIFICATION:

The deposit is considered to be a vein type deposit consisting of multiple veins. The genesis of the veins is uncertain. They may have formed by mobilization of sulphide in the country rock during metamorphism or, mobilization of sulphide contained in xenoliths of a sulphide-rich rock, or by mobilization from an unknown massive sulphide deposit during metamorphism. A similar interpretation was suggested by Fedikow and Gale (1982).

REFERENCES:

Assessment Files 91023, 91024
Manitoba Energy and Mines, Minerals Division.

Emslie, R.F. and Moore, J.M. Jr.
1961: Geological studies of the area between Lynn Lake and Fraser Lake; Manitoba Department of Mines and Natural Resources, Mines Branch, Publication 59-4, 76 p.

Fedikow, M.A.F. and Gale, G.H.
1982: Mineral deposit studies in the Lynn Lake area; in Manitoba Energy and Mines, Mineral Resources Division, Report of Field Activities 1982, p. 44-54.

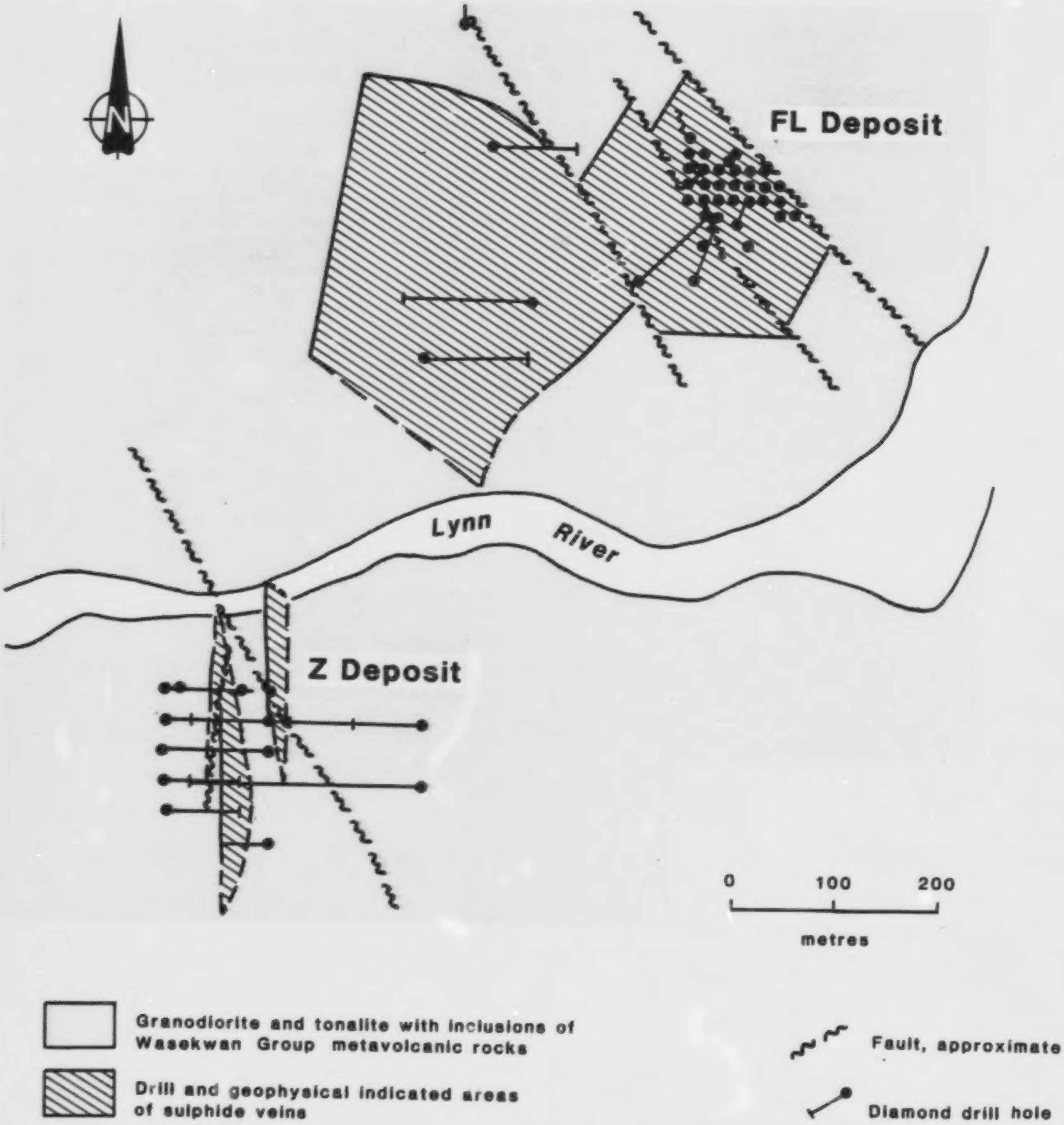

N
FL Deposit
Lynn River
Z Deposit
0
100
200
metres
Granodiorite and tonalite with inclusions of Wasekwan Group metavolcanic rocks
Drill and geophysical indicated areas of sulphide veins
Fault, approximate
Diamond drill hole

Figure 4-2: Geology of the FL and Z deposits as determined from geophysics and diamond drill holes (data from Sherritt Gordon Mines Ltd.).

Gilbert, H.P., Syme, E.C. and Zwanzig, H.V.

1980: Geology of the metavolcanic and volcaniclastic metasedimentary rocks in the Lynn Lake area; Manitoba Energy and Mines, Mineral Resources Division, Geological Paper GP80-1, 118 p.

Milligan, G.C.

1960: Geology of the Lynn Lake district, Manitoba; Manitoba Department of Mines and Natural Resources, Mines Branch, Publication 57-1, 317 p.

Mineral Inventory Card 64C/14 Cu 1

Manitoba Energy and Mines, Minerals Division.

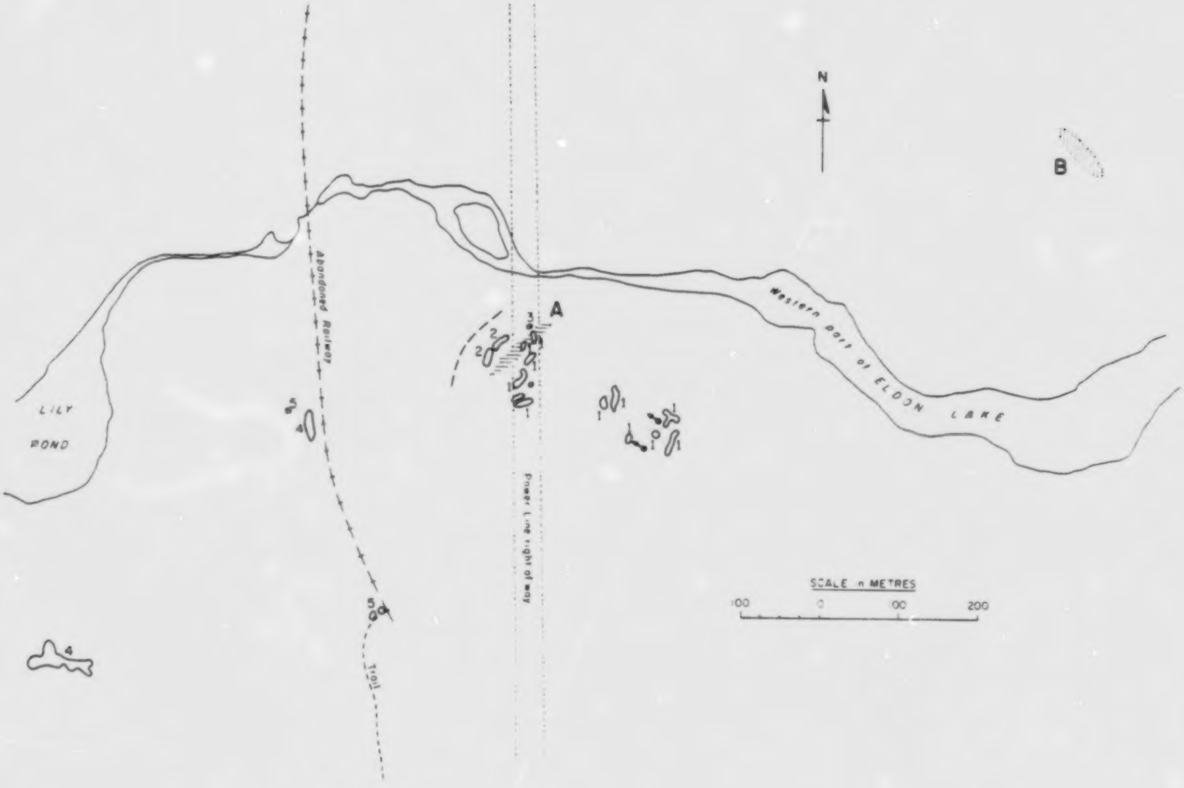

N
B
Abandoned Railway
A
Western part of ELDON LAKE
LILY POND
Power Line right of way
SCALE in METRES
100
0
100
200
Trail

Figure 5-1: Geology of the area around the Z deposit; 1. medium grained, leucocratic, hornblende-bearing gabbroic rocks; 2. dark green amphibolitic rocks; 3. silicic volcanic rock xenolith in unit 1; 4. frost-heaved rhyolitic rocks with 1-10% pyrite; 5. rhyolitic pyroclastic rocks; A. Position of Z deposit; B. position of FL deposits. Arrows indicate position of old diamond drill holes. Broken line represents approximate position of intrusive contact (after Fedikow and Gale, 1982).

LOCATION: 5

NAME: Z DEPOSIT

UTM: 6300035N 376246E

ACCESS: Via powerline right of way from Hwy. 397 (Fig. 4-1).

AREA: South side of Lynn Lake 2.5 km southeast of the town of Lynn Lake.

AIRPHOTO: A24142-173

EXPLORATION SUMMARY:

The deposit occurs on ELB 119 and 120 of the ELB claim group that was staked in 1946 by William Spessard. During the years 1947 and 1949 Sherritt Gordon Mines Ltd., conducted geological mapping, a geophysical (magnetic) survey and completed 1946 m of diamond drilling in 13 DDH (Fig. 4-2). In 1949 the claims were renewed for a further 21 year period. No further development work on the deposit has been reported (Mineral Inventory Card 64C/14 Cu2).

GEOLOGICAL SETTING:

The deposit occurs in a quartz diorite to diorite body (Gilbert *et al.*, 1980) close to the contact between these intrusive rocks and felsic pyroclastic rocks of the Lynn Lake rhyolitic complex (Emslie and Moore, 1961; Fedikow and Gale, 1982; Gilbert *et al.*, 1980). Surface exposures in the vicinity of the deposit are gabbroic and dioritic rocks (Fig. 5-1; Fedikow and Gale, 1982). The outcrops of gabbroic, dioritic and silicic volcanic rocks to the east of the intrusive contact (Fig. 5-1) are probably xenoliths in the quartz diorite.

MINERALIZATION:

The nature of the mineralization is the same as that for the FL deposit (location 4).

GEOCHEMICAL DATA:

217 680 tonnes grading 1.25% Cu and 2.4% Zn (pers. comm., Sherritt Gordon Mines Ltd., 1985).

CLASSIFICATION:

The deposit is considered to be a vein type deposit consisting of multiple veins. The genesis of the veins is uncertain but the veins could have formed from mobilization of sulphide from the country rock during metamorphism or, from xenoliths of a sulphide-rich rock, or from an unknown massive sulphide deposit, during metamorphism.

REFERENCES:

Emslie, R.F. and Moore, J.M. Jr.
1961: Geological studies of the area between Lynn Lake and Fraser Lake; Manitoba Department of Mines and Natural Resources, Mines Branch, Publication 59-4, 76 p.

Gilbert, H.P., Syme, E.C. and Zwanzig, H.V.
1980: Geology of the metavolcanic and volcaniclastic metasedimentary rocks in the Lynn Lake area; Manitoba Energy and Mines, Mineral Resources Division, Geological Paper GP80-1, 118 p.

Fedikow, M.A.F. and Gale, G.H.
1982: Mineral deposit studies in the Lynn Lake area; in Manitoba Energy and Mines, Mineral Resources Division, Report of Field Activities 1982, p. 44-54.

Mineral Inventory Card 64C/14 Cu 2
Manitoba Energy and Mines, Minerals Division.

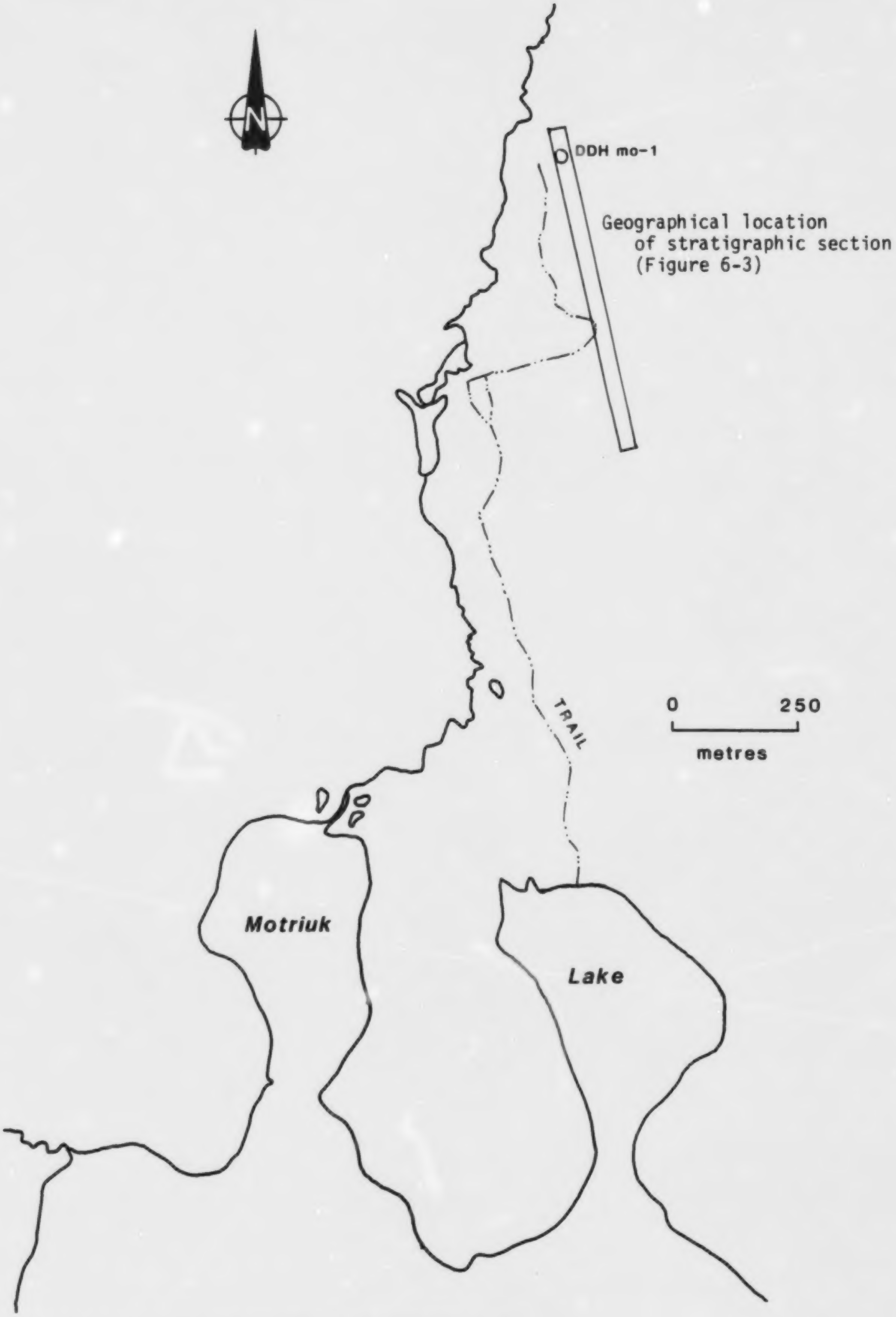

N
DDH mo-1
Geographical location of stratigraphic section (Figure 6-3)
TRAIL
0
250
metres
Motriuk
Lake

Figure 6-1: Map showing access and location of mineral locality 6.

LOCATION: 6

NAME:

UTM: 6300493N 365718E

ACCESS: Via Hwy. 396 to south end of Motriuk Lake, boat to east bay at north end of Motriuk Lake and by foot along winter road to occurrence (Fig. 6-1).

AREA: 2 km north of north shore of Motriuk Lake.

AIRPHOTO: A24199-19

EXPLORATION SUMMARY:

HLEM survey, ground magnetometer survey and four diamond drill holes were undertaken by Sherritt Gordon Mines Ltd. in 1973 on C.B. 5612. Geological mapping was conducted at scales of 1:6 000 and 1:600 by staff of Sherritt Gordon Mines Ltd. in August 1983. The claims are presently held by LynnGold Resources Inc.

GEOLOGICAL SETTING:

The regional geology of the area north of Motriuk Lake comprises a northeast trending sequence of volcanic and volcaniclastic sedimentary rocks that from southeast to northwest include: 1) a 1 km thick unit of mafic volcanic rocks composed of 450 m of pillowed basalt and 550 m of mafic heterolithic breccia interlayered with minor massive and brecciated basalt flows, porphyritic dacite and chert, 2) 150 to 300 m of greywacke and siltstone, and 3) 600 m of interlayered massive porphyritic rhyolite, porphyritic rhyolite breccia and rhyolite tuff (Gilbert *et al.*, 1980). The mineralization occurs in the upper part of the 1 km thick unit.

In detail, the area of the occurrence is underlain by an interlayered sequence of mafic flows, tuff, breccia and sedimentary rocks with lesser rhyolite crystal tuff, tuff and flows (Fig. 6-2). Graded bedding in sedimentary rocks indicates that the sequence faces north. The supracrustal sequence has been intruded by coarse and fine grained, mafic sills and dykes.

MINERALIZATION:

There are three zones of mineralization at this occurrence. Zone 1 (Fig. 6-2) is exposed at the surface and was intersected by drill holes MO-1 and MO-3. It comprises fine grained, minor disseminated pyrite and arsenopyrite (1 to 3%) in a thin bedded (1 to 2 cm), 12 m thick section of felsic, volcanic derived metasedimentary rocks at the top of the 700 m thick stratigraphic sequence shown in Figure 6-3 (Ferreira and Baldwin, 1984). The mineralization occurs throughout the 12 m thick section as mineralized and non-mineralized layers alternating at intervals of 1 to 3 m. Mineralized layers have a rusty weathered surface and boundaries between mineralized and non-mineralized layers are sharp and conformable with bedding. Locally sharp walled, 1 mm pyrite stringers are associated with disseminated pyrite and arsenopyrite. These pyrite stringers transect the boundaries of mineralized and non-mineralized layers and probably represent mobilized sulphide associated with metamorphism of the supracrustal sequence.

Zone 2 (Fig. 6-2) was examined at surface and DDH MO-1 appears to have intersected the mafic intrusive rocks that intrude the rhyolite flow. Zone 2 mineralization comprises minor disseminated pyrite and 1 mm wide pyrite stringers in the upper 9 m of a rhyolite flow that is intruded by mafic sills and dykes. The intrusive rocks do not contain sulphide.

Zone 3 is a drill intersected occurrence, not exposed at surface. The following description of the mineralization is extracted from Sherritt Gordon Mines Ltd. drill log for DDH, MO-2; the location of the drill hole is shown on Figure 6-2. At several sections in the drill hole there are pyrite and pyrrhotite stringers in a sequence of interlayered metasedimentary and metavolcanic rocks. Some sulphide stringers have associated biotite stringers. Locally sulphide and biotite stringers are parallel to the foliation. One sulphide stringer is associated with a 1 m thick layer of minor disseminated pyrite and pyrrhotite.

GEOCHEMICAL DATA:

Three grab samples were collected from mineralized layers in Zone 1. The analyses are tabulated below:

Sample	Cu	Zn	Pb	Ni	Cr	Ag	Au*
1	141	251	18	61	35	0	6
2	91	251	6	21	140	1	6
3	100	223	12	31	140	1	9

*Au values are ppb, all others are ppm.

CLASSIFICATION:

Mineralized zones 1 and 3 appear to be disseminated sulphide in clastic sedimentary rocks. Zone 2 is disseminated mineralization that is not classified. The sulphide stringers associated with the disseminated mineralization are probably sulphide mobilizate related to the metamorphism of the host rock and its contained sulphide.

REFERENCES:

Assessment File 92221
Manitoba Energy and Mines, Minerals Division.

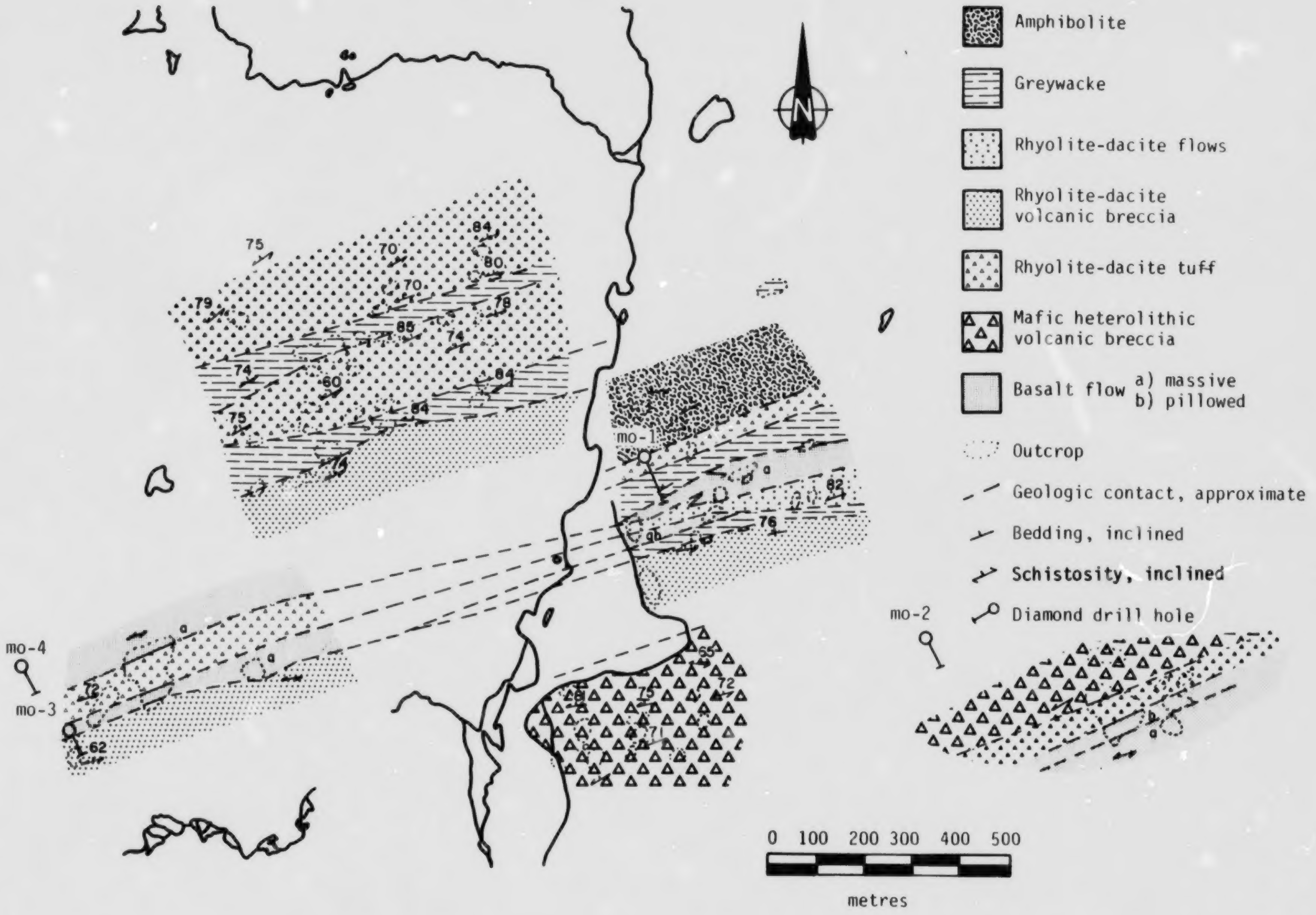

Amphibolite
Greywacke
Rhyolite-dacite flows
Rhyolite-dacite volcanic breccia
Rhyolite-dacite tuff
Mafic heterolithic volcanic breccia
Basalt flow a) massive b) pillowed
Outcrop
Geologic contact, approximate
Bedding, inclined
Schistosity, inclined
Diamond drill hole
N
mo-1
mo-2
mo-3
mo-4
0 100 200 300 400 500
metres
75
79
74
75
70
70
84
80
78
85
74
60
84
84
82
76
65
72
75
71
62

Figure 6-2: Geological setting of mineral locality 6 (includes data supplied by Sherritt Gordon Mines Ltd.).

Ferreira, K. and Baldwin, D.A.
1984: Mineral deposit documentation in the Lynn Lake area; in Manitoba Energy and Mines, Mineral Resources, Report of Field Activities 1984, p. 12-16.

Gilbert, H.P., Syme, E.C. and Zwanzig, H.V.
1980: Geology of the metavolcanic and volcaniclastic metasedimentary rocks in the Lynn Lake area; Manitoba Energy and Mines, Mineral Resources Division, Geological Paper GP80-1, 118 p.

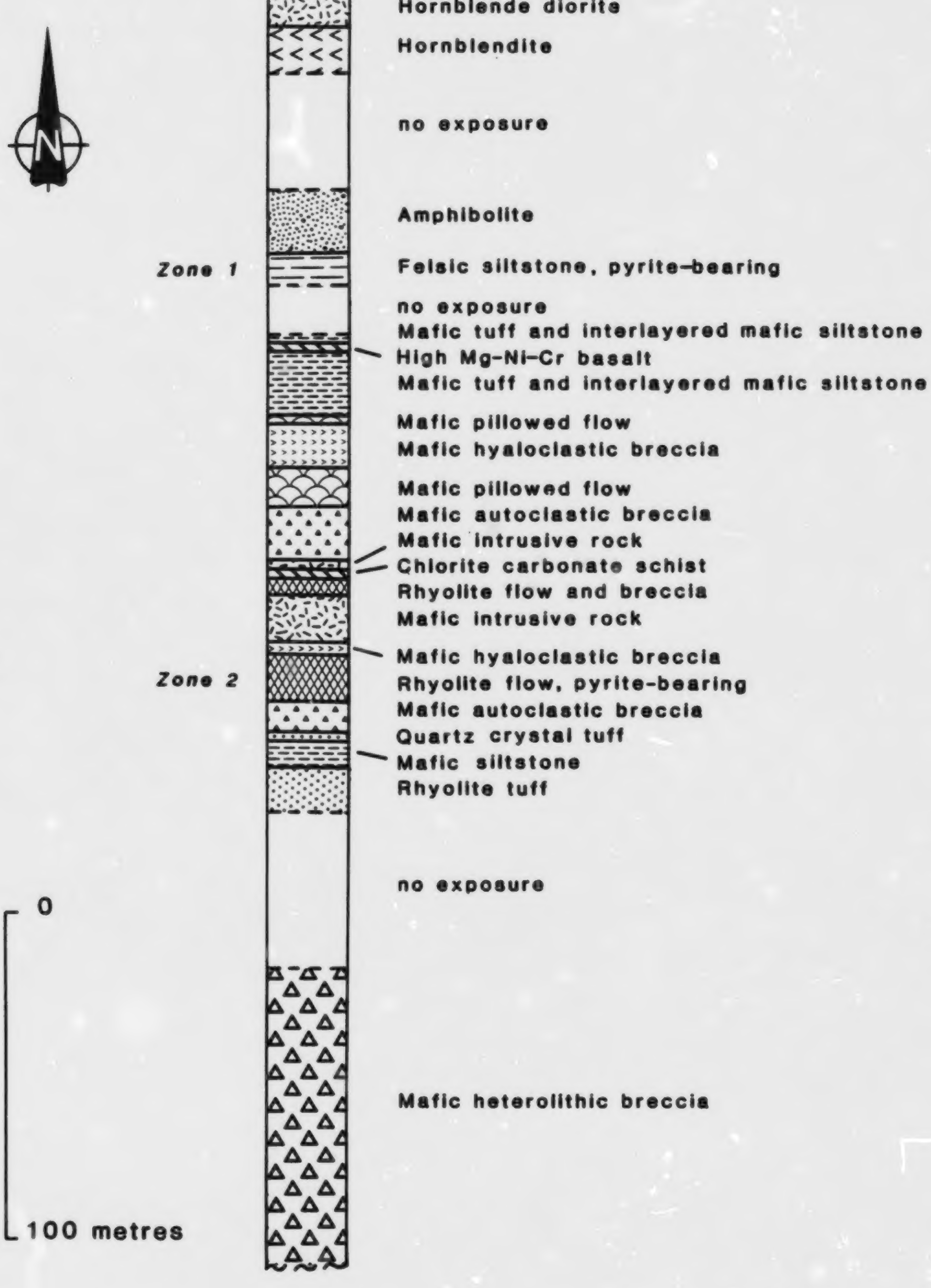

Hornblende diorite
Hornblendite
no exposure
Amphibolite
Zone 1
Felsic siltstone, pyrite-bearing
no exposure
Mafic tuff and interlayered mafic siltstone
High Mg-Ni-Cr basalt
Mafic tuff and interlayered mafic siltstone
Mafic pillowed flow
Mafic hyaloclastic breccia
Mafic pillowed flow
Mafic autoclastic breccia
Mafic intrusive rock
Chlorite carbonate schist
Rhyolite flow and breccia
Mafic intrusive rock
Mafic hyaloclastic breccia
Zone 2
Rhyolite flow, pyrite-bearing
Mafic autoclastic breccia
Quartz crystal tuff
Mafic siltstone
Rhyolite tuff
no exposure
Mafic heterolithic breccia
N
0
100 metres

Figure 6-3: Stratigraphic section of the geology around mineral locality 6 (after Ferreira and Baldwin, 1984).

LOCATION: 7

NAME: NICOBA
UTM: 6298996N 373349E
ACCESS: Via drill road from Hwy. 396.
AREA: 4 km southwest of the town of Lynn Lake.
AIRPHOTO: A24919-79

EXPLORATION SUMMARY:

The ground was originally staked from 1945 to 1946. R.W. Baker conducted a magnetic survey and geological mapping in the summer of 1946 for International Mining Corporation (Canada) Ltd.; the claims were surveyed in 1947 (Milligan, 1960). Between 1947 and 1956 diamond drilling was conducted in the area, but records are incomplete and it is not known if the deposit was one of the targets for this drilling. The claims were cancelled in 1956. Granges Exploration Ltd. restaked the ground in 1976, conducted an electromagnetic survey and drilled eight DDH in 1977 . In 1983 an additional eight holes were drilled by Sherritt Gordon Mines Ltd. in joint venture with Granges Exploration Ltd. The ground is presently held by Granges Exploration Ltd.

GEOLOGICAL SETTING:

The Nicoba deposit is located within a large body of Wasekwan Group felsic volcanic rocks, "Lynn Lake Rhyolitic Complex", centered near the townsite of Lynn Lake (Map, in pocket). The rhyolitic complex is approximately 18 km long and up to 3 km thick. It consists of 75% felsic pyroclastic rocks with the remainder made up of felsic flows, minor reworked and redeposited pyroclastic material and interbedded and/or intruded amphibolite (Baldwin, 1983). On the basis of lithologic proportions and changes in phenocryst population, Baldwin (1983), subdivided the rocks in the complex into Southern, Central and Northern Units, thus recognizing a major change in lithological character at the stratigraphic position of the Nicoba deposit (Fig. 7-1, 7-2). Emslie and Moore (1961) suggested that the rocks in the area are south-facing. Gilbert *et al.* (1980) and Baldwin (1983) observed younging criteria that indicate stratigraphic tops to the northwest. The distribution of variously altered felsic volcanic rocks in relationship with the Nicoba deposit suggest the felsic volcanic sequence is northwest-facing (Barham, 1985).

MINERALIZATION:

The sulphide lenses (Fig. 7-2) consist mainly of pyrite and pyrrhotite and, among the ore minerals, sphalerite is more abundant than chalcopyrite (Barham, 1985). Most mineralized intersections consist of several closely spaced thin solid sulphide layers separated by intensely altered rock consisting of biotite, chlorite and disseminated sulphide. Some sulphide layers are mineralogically zoned with chalcopyrite-rich lower sections and sphalerite-rich upper sections (Barham, 1985).

Alteration and subsequent medium grade metamorphism at the Nicoba deposit have produced a distinct stratiform footwall zone of pelitic composition in which porphyroblasts of aluminous minerals occur (Fig. 7-2). The zone of alteration extends at least 350 m beyond the western margin of Figure 7-2 (Barham, 1985).

GEOCHEMICAL DATA:

One lens contains 79 800 tonnes grading 0.55% Cu, 5.58% Zn, 0.2 g/tonne Au and 6.2 g/tonne Ag. The other lens contains 100 000 tonnes grading 0.47% Cu, 4.37% Zn, 0.2 g/tonne Au and nil Ag (pers. comm. Lynn-Gold Resources Inc.).

CLASSIFICATION:

The association of stratabound solid sulphide lenses and intensely altered footwall rocks in a volcanic sequence indicates the Nicoba deposit is a stratabound massive sulphide type deposit that is volcanic rock-associated.

REFERENCES:

Baldwin, D.A.

1983: Stratigraphic studies of felsic volcanic rocks associated with mineral occurrences in the Lynn Lake area, Manitoba; in Manitoba Energy and Mines, Mineral Resources Division, Report of Field Activities 1983, p. 88-93.

Barham, B.A.

1985: The geology of the Nicoba Zn-Cu deposit, Lynn Lake, Manitoba: preliminary results; in Current Research, Part B, Geological Survey of Canada, Paper 85-1B, p. 499-509.

Emslie, R.F. and Moore, J.M. Jr.

1961: Geological studies of the area between Lynn Lake and Fraser Lake; Manitoba Department of Mines and Natural Resources, Mines Branch, Publication 59-4. p. 76 p.

Gilbert, H.P., Syme, E.C. and Zwanzig, H.V.

1980: Geology of the metavolcanic and volcaniclastic metasedimentary rocks in the Lynn Lake area; Manitoba Energy and Mines, Mineral Resources Division, Geological Paper GP80-1, 118 p.

Milligan, G.C.

1960: Geology of the Lynn Lake district, Manitoba; Manitoba Department of Mines and Natural Resources, Mines Branch, Publication 57-1, 317 p.

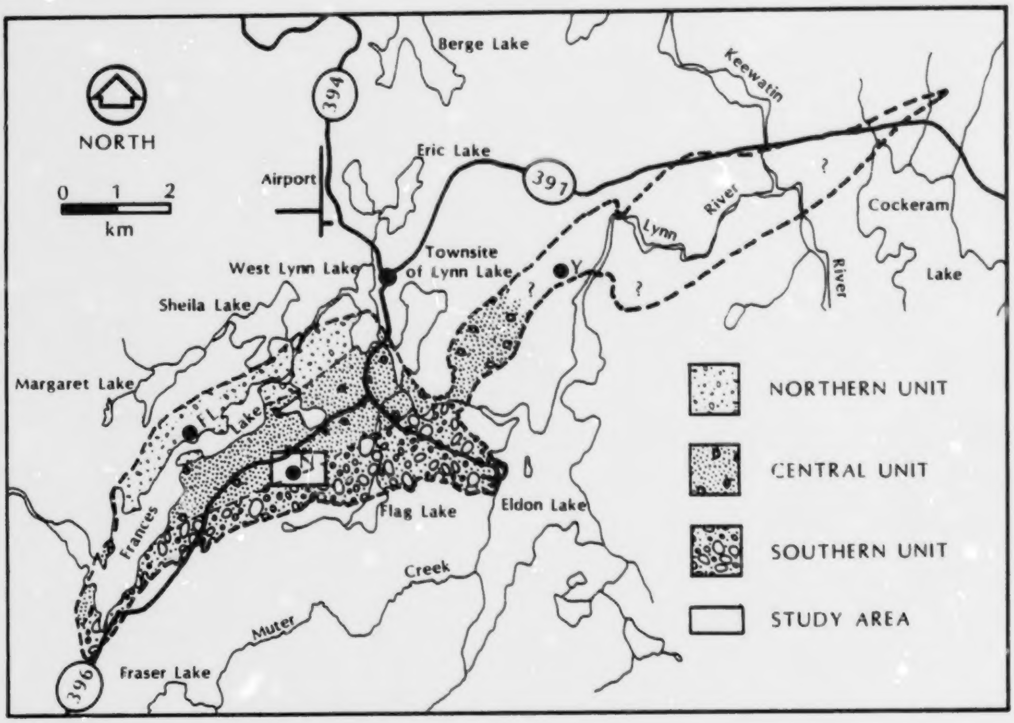

Berge Lake
394
NORTH
0 1 2
km
Airport
Eric Lake
397
Keewatin
Lynn
River
?
Cockeram
Lake
River
Townsite
of Lynn Lake
Y
West Lynn Lake
Sheila Lake
Margaret Lake
FL
Lake
N
Frances
Flag Lake
Eldon Lake
Creek
Muter
Fraser Lake
396
NORTHERN UNIT
CENTRAL UNIT
SOUTHERN UNIT
STUDY AREA

Figure 7-1: ***Preliminary stratigraphic subdivision of the Lynn Lake Rhyolitic Complex (N-Nicoba deposit, Y-Y deposit, FL-Frances Lake deposit; after Baldwin, 1983).***

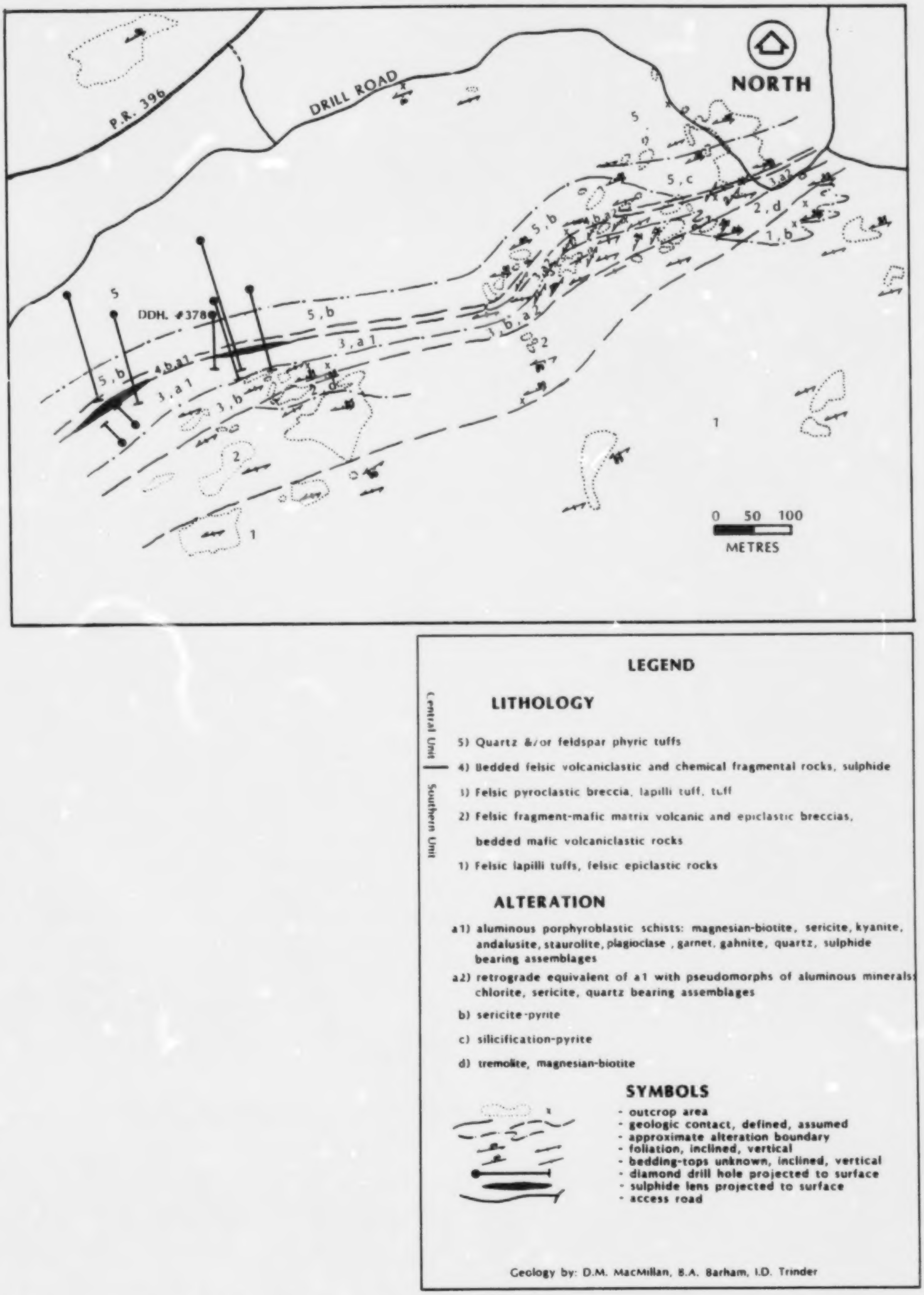

NORTH
P.R. 396
DRILL ROAD
5
5 , c
5 , b
3 , a2
2 , d
1 , b
3 , b , a2
2
DDH. #378
5 , b
3 , a 1
4 , b , a1
5 , b
3 , a 1
3 , b
2
1
1
0 50 100
METRES
LEGEND
LITHOLOGY
Central Unit
Southern Unit
5) Quartz &/or feldspar phyric tuffs
4) Bedded felsic volcaniclastic and chemical fragmental rocks, sulphide
3) Felsic pyroclastic breccia, lapilli tuff, tuff
2) Felsic fragment-mafic matrix volcanic and epiclastic breccias, bedded mafic volcaniclastic rocks
1) Felsic lapilli tuffs, felsic epiclastic rocks
ALTERATION
a1) aluminous porphyroblastic schists: magnesian-biotite, sericite, kyanite, andalusite, staurolite, plagioclase , garnet, gahnite, quartz, sulphide bearing assemblages
a2) retrograde equivalent of a1 with pseudomorphs of aluminous minerals: chlorite, sericite, quartz bearing assemblages
b) sericite-pyrite
c) silicification-pyrite
d) tremolite, magnesian-biotite
SYMBOLS
- outcrop area
- geologic contact, defined, assumed
- approximate alteration boundary
- foliation, inclined, vertical
- bedding-tops unknown, inclined, vertical
- diamond drill hole projected to surface
- sulphide lens projected to surface
- access road
Geology by: D.M. MacMillan, B.A. Barham, I.D. Trinder

Figure 7-2: Geology of the Nicoba Zn-Cu deposit (after Barham, 1985).

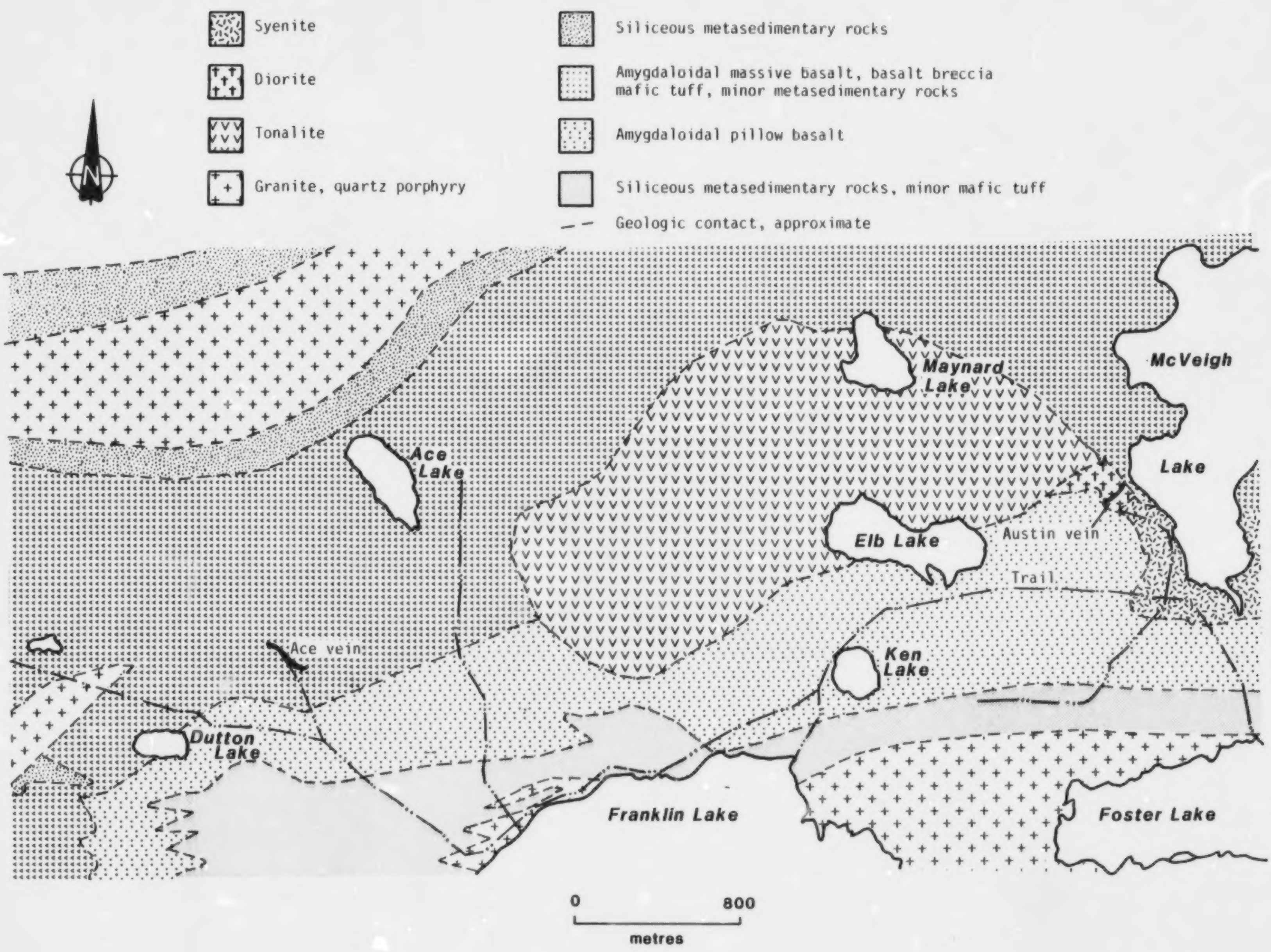

Syenite
Diorite
Tonalite
Granite, quartz porphyry
Siliceous metasedimentary rocks
Amygdaloidal massive basalt, basalt breccia mafic tuff, minor metasedimentary rocks
Amygdaloidal pillow basalt
Siliceous metasedimentary rocks, minor mafic tuff
Geologic contact, approximate
N
McVeigh Lake
Maynard Lake
Ace Lake
Elb Lake
Austin vein
Trail
Ace vein
Ken Lake
Dutton Lake
Franklin Lake
Foster Lake
0
800
metres

Figure 8-1: Geology of the area around McVeigh Lake and Ace Lake (modified from Bateman, 1945; Gilbert et al., 1980).

LOCATION: 8

NAME: ACE VEIN

UTM: 6291869N 373523E

ACCESS: Via float plane from Lynn Lake to Franklin Lake and 1.4 km along old trail (Fig. 8-1).

AREA: Approximately 11 km south of the town of Lynn Lake, between Ace and Dutton Lakes; 1.15 km west-northwest from west end of Franklin Lake.

AIRPHOTO: A24142-177

EXPLORATION SUMMARY:

The ground was staked in 1939 by J. McKenzie and C.G. Murray following the discovery of gold-bearing erratics north of Dutton Lake. In February, 1940 the claims were transferred to E.L. Brown. During the summer of 1940 stripping and test pitting revealed the mineralized quartz-vein. In the years 1941 to 1945 the claims were surveyed and leased to E.L. Brown and diamond drilling and trenching are reported to have been done, but assessment reports for this work were not filed. In May, 1945, the leases were assigned to Sherritt Gordon Mines Ltd. The claims were cancelled in February, 1966. The ground was included in the February, 1981 staking of C.B. 10452 by Sherritt Gordon Mines Ltd. In November, 1985 the claim block was transferred to Shergold Inc.

GEOLOGICAL SETTING:

The McVeigh Lake area (Fig. 8-1) is underlain by Wasekwan Group mafic volcanic and siliceous metasedimentary supracrustal rocks that were intruded by tonalite, diorite and syenite and sill-like bodies of granite and quartz porphyry. The granite at Franklin Lake and Foster Lake was sheared subsequent to emplacement.

The area of the mineral occurrence is underlain by basalt flows, breccia, lapilli tuff and minor altered siliceous sedimentary rocks that were intruded by a plagioclase porphyry. In the immediate vicinity of the mineral occurrence the basaltic rocks are predominantly plagioclase-phyric and form part of the Fox Mine-Gemmel Lake succession that is mainly basalt in composition (Gilbert *et al.*, 1980). A few tens of metres northeast of the occurrence basaltic rocks are aphyric and form the west limit of the Cockeram Lake basalt (Gilbert *et al.*, 1980). To the north and northwest of the occurrence the basaltic rocks form part of the plagioclase- and hornblende-phyric McVeigh Lake basalt (Gilbert et. al., 1980). All rocks in the area have a pronounced vertical schistosity, oriented at 80 to 90 degrees.

The geology of the occurrence comprises interlayered basaltic lapilli-tuff and indistinctly bedded fine grained quartz-plagioclase-biotite rocks (Fig. 8-2). This fine grained siliceous rock is probably recrystallized sedimentary rock. A plagioclase porphyry dyke intruded the volcanic and sedimentary sequence at and close to one of the contacts between mafic lapilli-tuff and quartz-plagioclase-biotite rock (Fig. 8-2). Sulphide-bearing quartz veins most commonly occur in the siliceous rock, close to the contact with mafic tuff, but are also present in the plagioclase porphyry.

The pronounced schistosity in the rocks, the intrusion of plagioclase porphyry and the presence of sulphide-bearing quartz veins are all similar to other gold occurrences spatially associated with the Johnson Shear Zone (see location 21, 20 this report, and report 8 of the Mineral Deposit Series).

MINERALIZATION:

Sulphide minerals were only found in quartz veins. Galena, sphalerite and minor amounts of pyrite and chalcopyrite form football-sized and shape, solid sulphide pods. In addition, minor fractures in the quartz veins are occupied by sulphide minerals. Bateman (1945) reported free gold in one test pit and coarse gold in a quartz vein occupying a fracture in the plagioclase porphyry.

GEOCHEMICAL DATA:

Bateman (1945) collected samples from a quartz vein that had a high galena content. He reported 50.7 g/tonne (1.63 oz/ton) Au, 309.2 g/tonne (9.94 oz/ton) Ag and 7.09% Pb. During the present study nine samples from the occurrence were analyzed (Fig. 8-2):

Sample	Au*	Ag**	Cu**	Zn**	Pb**	Mo**
1	tr	1	223	51	6	2
2	27.7	110.4 g/tonne	248	0.44%	1.79%	10
3	10.3	14	98	248	796	5
4	0.3	2	116	120	84	2
5	tr	1	135	89	52	1
6	91	128.8 g/tonne	123	0.26%	0.84%	7
7	1.9	4	45	32	177	6
8	0.3	1	36	2	32	5
9	tr	1	37	3	13	6

* g/tonne

** ppm unless otherwise specified.

Samples No. 2 and 6 are continuous chip samples across the width of quartz veins at localities with abundant sulphide in the veins.

CLASSIFICATION:

Vein type mineralization consisting of multiple veins.

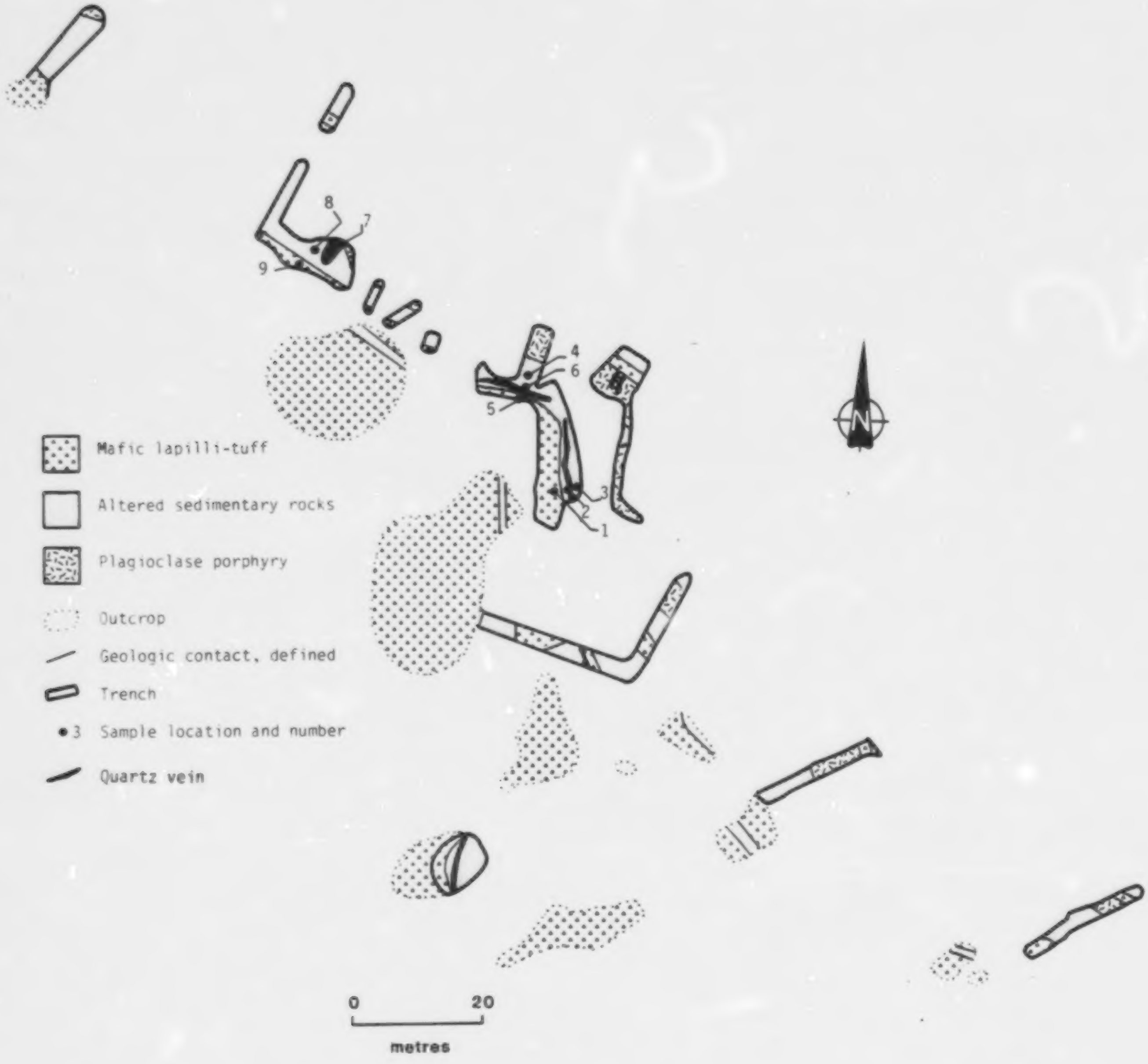

8
7
9
4
6
5
3
2
1
N
Mafic lapilli-tuff
Altered sedimentary rocks
Plagioclase porphyry
Outcrop
Geologic contact, defined
Trench
3 Sample location and number
Quartz vein
0
20
metres

Figure 8-2: Geological plan in the vicinity of the Ace vein (modified from Bateman, 1945).

REFERENCES:

Bateman, J.D.

1945: McVeigh Lake area, Manitoba; Canada Department of Mines and Resources, Mines and Geology Branch, Geological Survey Paper 45-14, 34 p.

Gilbert, H.P., Syme, E.C. and Zwanzig, H.V.

1980: Geology of the metavolcanic and volcaniclastic metasedimentary rocks in the Lynn Lake area; Manitoba Energy and Mines, Mineral Resources Division, Geological Paper GP80-1, 118 p.

Milligan, G.C.

1960: Geology of the Lynn Lake district, Manitoba; Manitoba Department of Mines and Natural Resources, Mines Branch, Publication 57-1, 317 p.

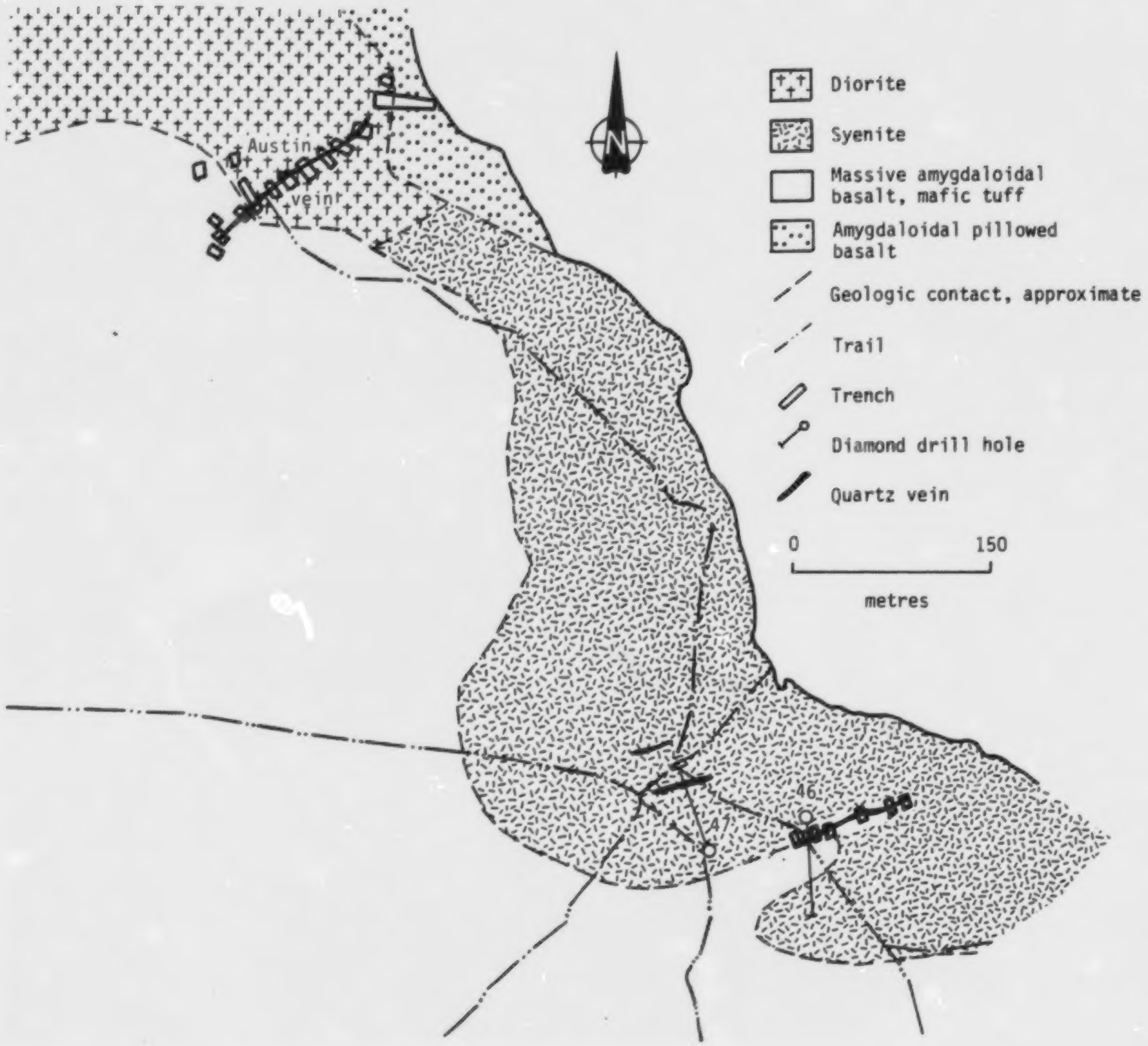

Austin vein
46
N
Diorite
Syenite
Massive amygdaloidal basalt, mafic tuff
Amygdaloidal pillowed basalt
Geologic contact, approximate
Trail
Trench
Diamond drill hole
Quartz vein
0
150
metres

Figure 9-1: Geological setting of the Austin vein (modified from Bateman, 1945; Gilbert et al., 1980).

LOCATION: 9

NAME: AUSTIN VEIN

UTM: 6292641N 377461E

ACCESS: Via float plane from Lynn Lake to McVeigh Lake; 80 m from shore of McVeigh Lake.

AREA: 10 km south of Lynn Lake on the west side of McVeigh Lake.

AIRPHOTO: A24142-177

EXPLORATION SUMMARY:

In 1939 the ground was staked by F.E. Johnston as the Faust 5 claim, and surveyed. The claim was transferred to E.L.Brown in 1940 and diamond drilling and trenching by Sherritt Gordon Mines Ltd. were reported in 1943, but there are no records of the work in the Assessment files. In 1945 a 21 year lease was issued to E.L. Brown and the claim assigned to Sherritt Gordon Mines Ltd. The lease was cancelled in 1966. Sherritt Gordon Mines Ltd. restaked the ground in 1981 as part of C.B. 12701. In November, 1985 the claim block was transferred to Shergold Inc. and subsequently transferred to LynnGold Resources Inc.

GEOLOGICAL SETTING:

The McVeigh Lake area (Fig. 8-1) is underlain by Wasekwan Group mafic volcanic and siliceous metasedimentary supracrustal rocks that were intruded by tonalite, diorite, syenite and sill-like bodies of granite and quartz porphyry (Fig. 9-1). The granite at Franklin Lake and Foster Lake was sheared subsequent to emplacement.

The Austin vein occurs in quartz diorite that is bounded to the north by tonalite and to the south by syenite (Fig. 9-1). The vein strikes northeasterly. It fills a fracture in the diorite and varies from 0.35 to 1.25 m in width and dips steeply toward the northwest.

When the occurrence was visited during this study the trenches were caved and heavily overgrown. Thus the most complete map of the occurrence and the location of the trenches is that provided by Bateman (1945). His map is reproduced here as Figure 9-1.

MINERALIZATION:

The quartz is shattered and mineralized with pyrite, galena and minor sphalerite (Bateman, 1945).

GEOCHEMICAL DATA:

Milligan (1960) and Bateman (1945) stated that commercial values of gold are reported from the trenches, but no assays are given.

CLASSIFICATION:

Single quartz vein that occupies a fracture in granitic rocks.

REFERENCES:

Bateman, J.D.

1945: McVeigh Lake area, Manitoba; Canada Department of Mines and Resources, Mines and Geology Branch, Geological Survey Paper 45-14, 34 p.

Manitoba Inventory Card 64C/14 Au 2

Manitoba Energy and Mines.

Milligan, G.C.

1960: Geology of the Lynn Lake district, Manitoba; Manitoba Department of Mines and Natural Resources, Mines Branch, Publication 57-1, 317 p.

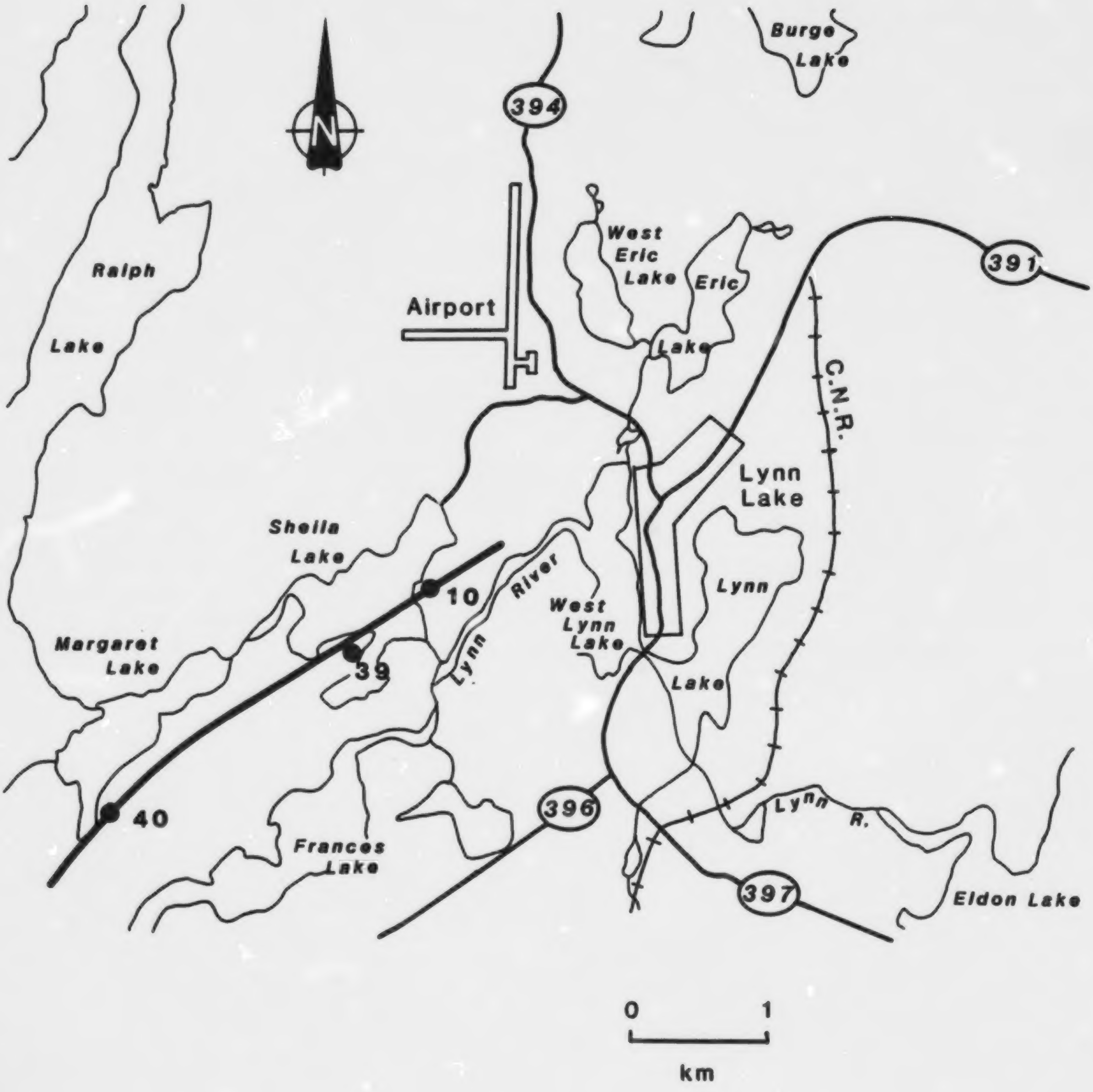

Burge Lake
394
N
Ralph Lake
Airport
West Eric Lake
Eric Lake
391
C.N.R.
Lynn Lake
Sheila Lake
10
Lynn River
West Lynn Lake
Lynn Lake
Margaret Lake
39
40
396
Frances Lake
Lynn R.
397
Eldon Lake
0
1
km

Figure 10-1:Sketch showing location of and access to mineral localities 10, 39 and 40.

LOCATION: 10

NAME:

UTM: 6301706N 373064E

ACCESS: Via Hwy. 394 to gravel road immediately south of the entrance to Lynn Lake airport, follow gravel road to northeast shore of Sheila Lake, boat to mineral occurrence location (Fig. 10-1).

AREA: Southeast shore of Sheila Lake.

AIRPHOTO: A24299-46

EXPLORATION SUMMARY:

Trenching of unknown vintage. Sherritt Gordon Mines Ltd. conducted line cutting and geophysical surveys in 1978 and geological mapping in 1984 (pers. comm., Sherritt Gordon Mines Ltd.).

GEOLOGICAL SETTING:

The area is underlain by mafic to felsic sedimentary rocks, and minor mafic and felsic volcanic flow rocks (Gilbert *et al.* 1980). The sedimentary rocks are probably volcaniclastic sedimentary rocks consisting of redeposited pyroclastic material and include heterolithic volcanic breccia, polymictic volcanic derived conglomerate greywacke, siltstone and minor mudstone (Baldwin, 1983; Ferreira, 1986).

At the mineral occurrence mafic, intermediate and felsic volcaniclastic sedimentary rocks are interlayered (Fig. 10-2). A lens of banded chert occurs close to the south boundary of the pyritic sedimentary rocks. The pyritic sedimentary rocks become more siliceous toward the south boundary of the unit. A detailed sketch map of the occurrence is shown in Figure 10-3.

MINERALIZATION:

The mineralization consists of a 0.5 to 1 m thick layer of solid sulphide comprising mostly pyrrhotite and lesser pyrite with minor chalcopyrite, amphibolite, quartz and biotite. The host rocks are pyritic siliceous siltstone with minor interlayered siltstone and garnetiferous amphibolite. The pyritic siliceous siltstones contain minor to moderate amounts (12 to 15%) of fine grained disseminated pyrite and arsenopyrite. Local sulphide mobilizate is concentrated in 1 to 2 mm thick stringers.

GEOCHEMICAL DATA:

Four grab samples were collected from the sulphide-bearing rocks. The sample of solid sulphide was collected from a block in the trench that was assumed to be almost in place. Sample locations are shown in Figure 10-2.

Sample No.	Rock Type	Cu%	Zn%	Pb%	Au ppm
1	pyritic sediment	tr	tr	nil	17
2	solid sulphide	tr	tr	nil	12
3	chert	tr	tr	nil	11
4	pyritic sediment	tr	tr	nil	2

Twenty-nine (29) additional samples, spaced 1 to 2 m apart, and perpendicular to strike, were collected from the pyritic sedimentary rocks, solid sulphide and the banded chert and argillite. These samples were geochemically analyzed for Ag, Cu, Zn, Pb and assayed for Au. The range of values obtained were:

Au - nil to 311 ppm
Ag - nil to 1 ppm
Cu - 26 to 770 ppm
Zn - 6 to 868 ppm
Pb - 2 to 84 ppm

CLASSIFICATION:

Based on the presence of a solid sulphide layer and a chert lens in sedimentary rocks the occurrence is classified as sedimentary rock-associated massive sulphide type mineralization.

REFERENCES:

Baldwin, D.A.

1983: Stratigraphic studies of felsic volcanic rocks associated with mineral occurrences in the Lynn Lake area, Manitoba; in Manitoba Energy and Mines, Mineral Resources Division, Report of Field Activities 1983, p. 88-93.

Ferreira, K.

1986: Geological investigation in the Sheila Lake-Margaret Lake area; in Manitoba Energy and Mines, Minerals Division, Report of Field Activities 1986, p. 8-12.

Gilbert, H.P., Syme, E.C. and Zwanzig, H.V.

1980: Geology of the metavolcanic and volcaniclastic metasedimentary rocks in the Lynn Lake area. Manitoba Energy and Mines, Mineral Resources Division, Geological Paper GP80-1, 117 p.

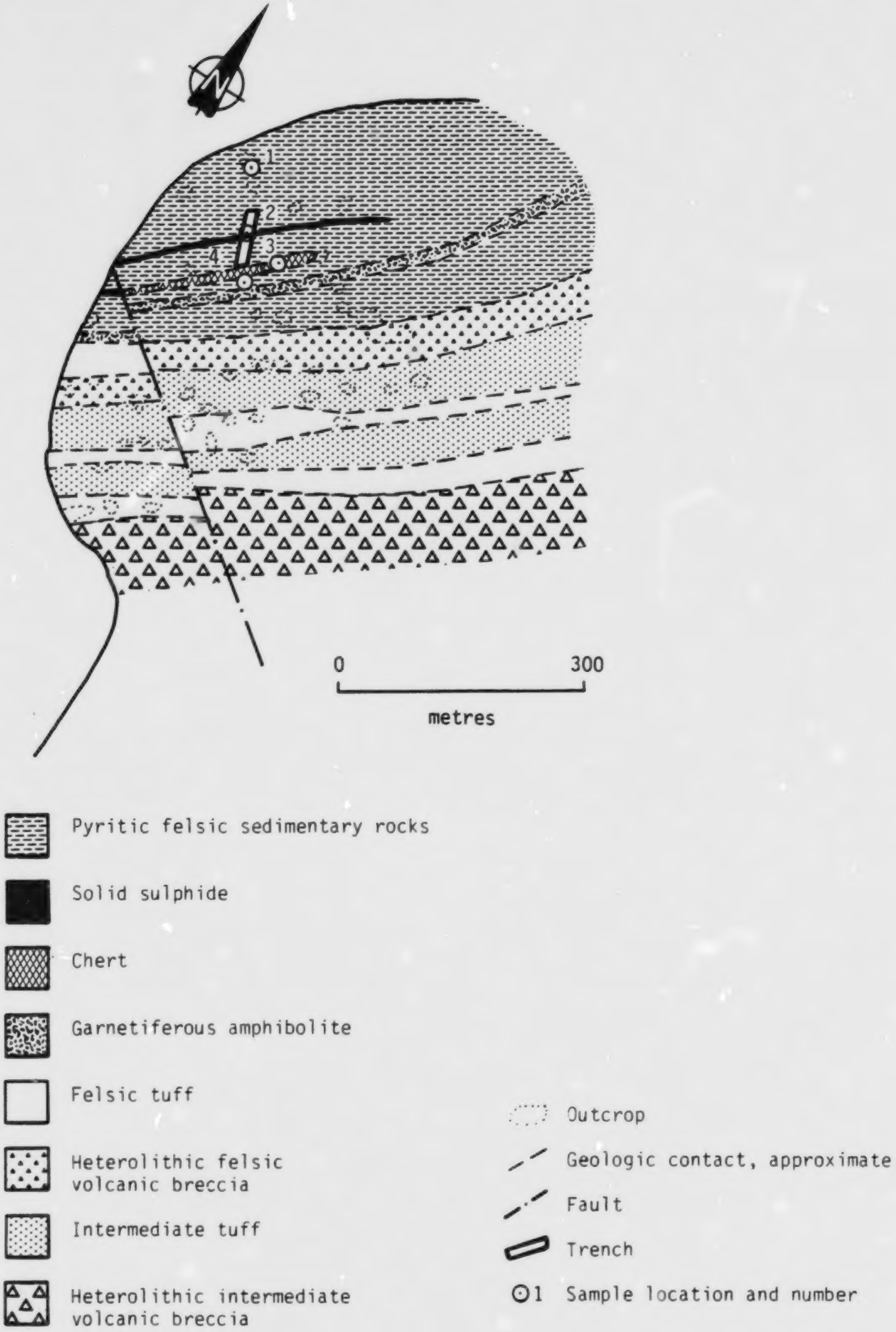

1
2
3
4
0
300
metres
Pyritic felsic sedimentary rocks
Solid sulphide
Chert
Garnetiferous amphibolite
Felsic tuff
Heterolithic felsic volcanic breccia
Intermediate tuff
Heterolithic intermediate volcanic breccia
Outcrop
Geologic contact, approximate
Fault
Trench
1 Sample location and number

Figure 10-2:Geological setting of mineral locality 10.

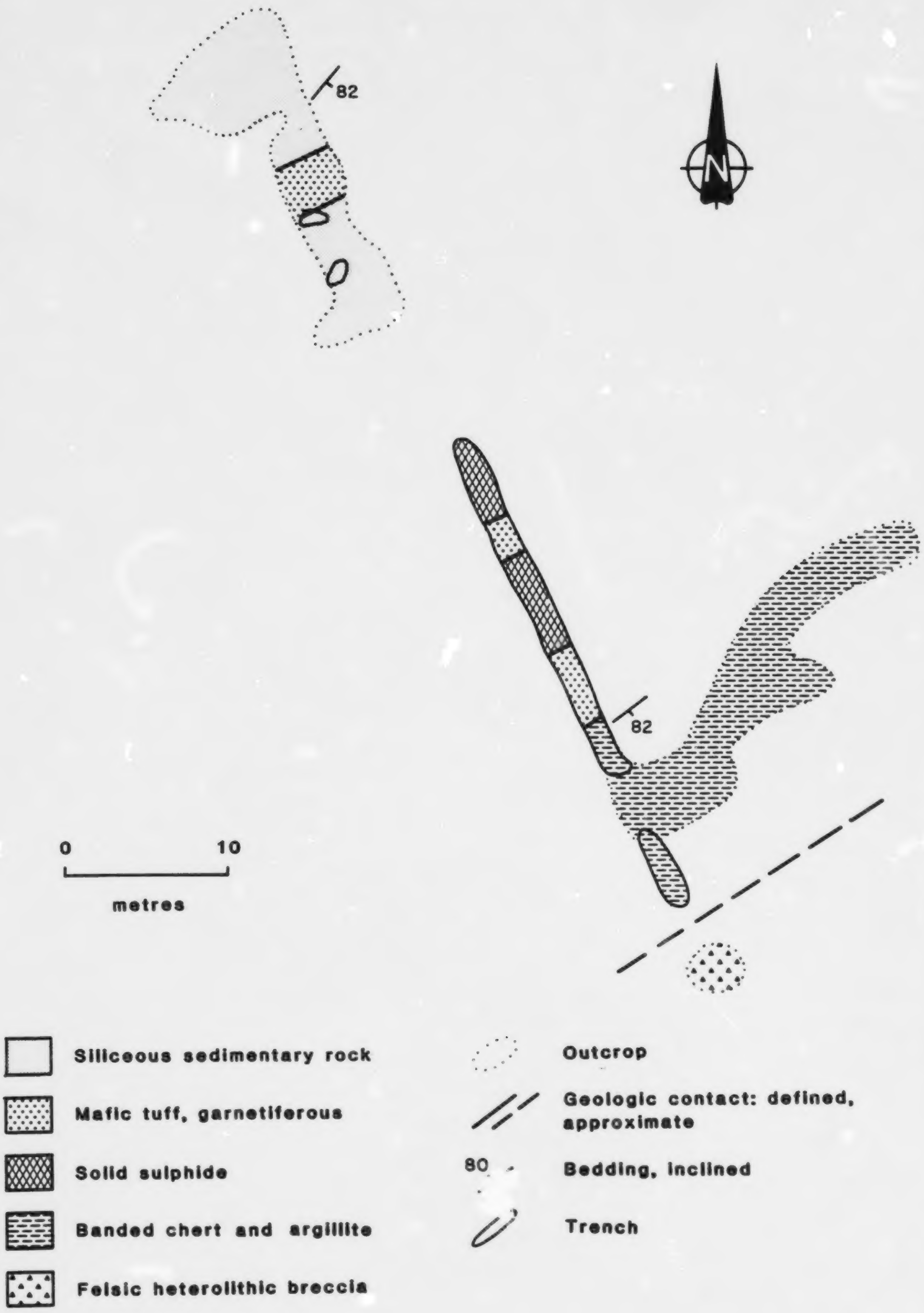

82
N
82
0
10
metres
Siliceous sedimentary rock
Mafic tuff, garnetiferous
Solid sulphide
Banded chert and argillite
Felsic heterolithic breccia
Outcrop
Geologic contact: defined, approximate
80
Bedding, inclined
Trench

Figure 10-3:Geological plan in the vicinity of mineral locality 10.

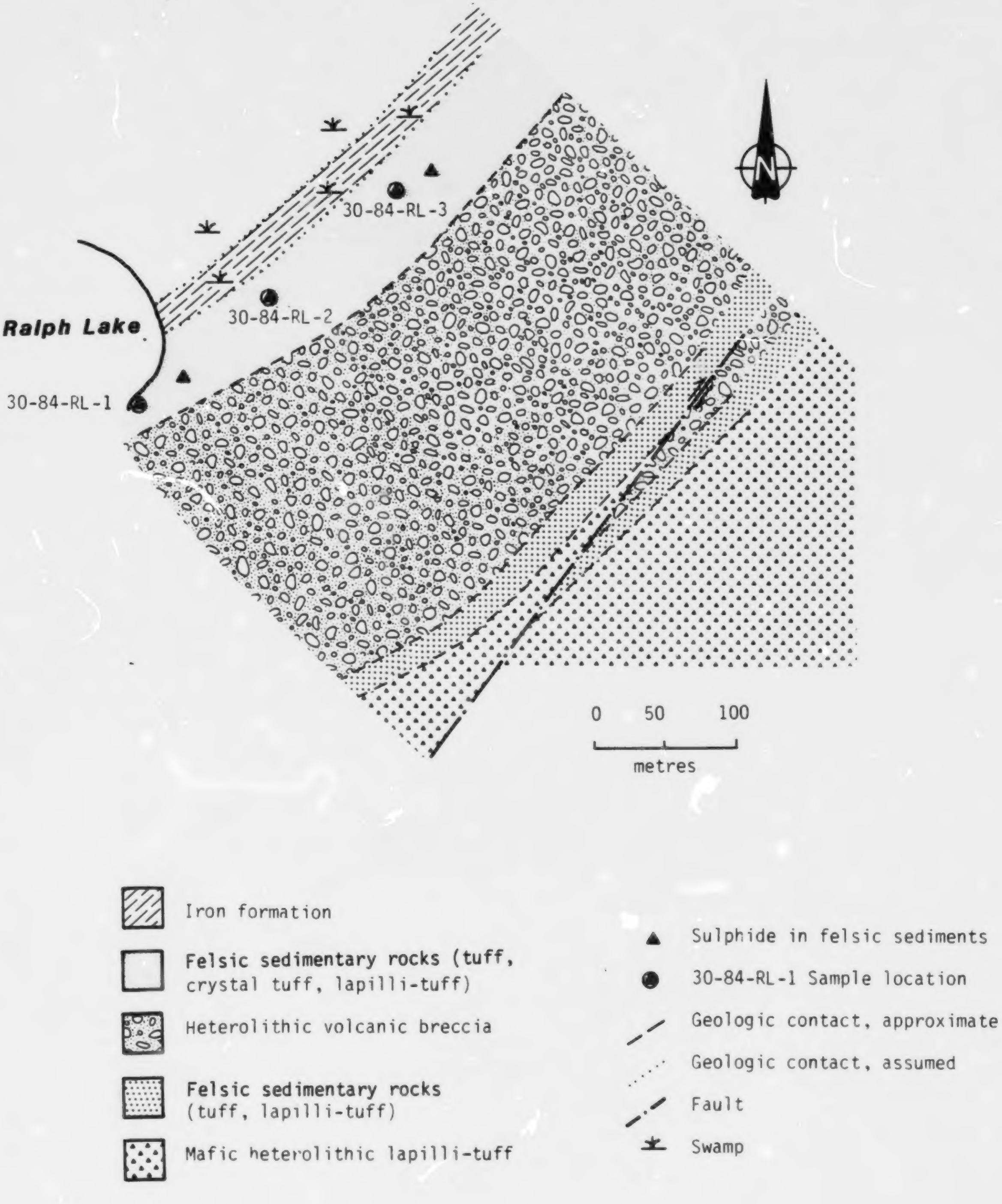

Ralph Lake
30-84-RL-1
30-84-RL-2
30-84-RL-3
N
0
50
100
metres
Iron formation
Felsic sedimentary rocks (tuff, crystal tuff, lapilli-tuff)
Heterolithic volcanic breccia
Felsic sedimentary rocks (tuff, lapilli-tuff)
Mafic heterolithic lapilli-tuff
Sulphide in felsic sediments
30-84-RL-1 Sample location
Geologic contact, approximate
Geologic contact, assumed
Fault
Swamp

Figure 11-1: Geological sketch map of the area around mineral locality 11.

LOCATION: 11

NAME:

UTM: 6304925N 371730E

ACCESS: Via Hwy. 394 from Lynn Lake to Ralph Lake boat landing; 150 m from shoreline.

AREA: East shore of Ralph Lake.

AIRPHOTO: A24299-44

EXPLORATION SUMMARY:

Although the area of the mineral occurrence has been staked on numerous occasions there are no records of exploration work.

GEOLOGICAL SETTING:

The occurrence lies close to the top of a northwest facing sequence of heterolithic volcanic breccia and lesser mafic heterolithic lapilli-tuff and felsic metasedimentary rocks that may be redeposited pyroclastic rocks (Fig. 11-1; Ferreira and Baldwin, 1980). This sequence (referred to as Division D of the northern belt of the Lynn Lake greenstone belt by Gilbert *et al.* 1980) is topped by iron formation and overlain by conglomerate that may be the base of the Sickle Group.

The occurrence is hosted by a 50 to 60 m thick unit of layered felsic metasedimentary rocks (Fig. 11-1). The exposed strike length of the felsic unit in the area of the mineral occurrence is about 350 m. The felsic unit comprises thin bedded tuff, crystal tuff and rare lapilli-tuff.

MINERALIZATION:

The occurrence contains moderately (10 to 20%) disseminated pyrrhotite, pyrite and minor chalcopyrite and sphalerite in thin bedded felsic volcaniclastic metasedimentary rocks. The sulphide minerals form a 12 m thick zone, within the felsic unit that is conformable to the lower boundary of the felsic unit; the upper boundary is not exposed. The sulphide zone has been traced laterally for about 250 m (Fig. 11-1).

GEOCHEMISTRY:

Three continuous chip samples were collected at the occurrence and were geochemically analyzed for Cu, Zn, Pb, Ni, Cr, Ag and Au. The results are tabulated below:

Sample	Length	Cu	Zn	Pb	Ni	Cr	Ag	Au*
30-84-RL-1	12 m	122	104	0	14	9	1	6
30-84-RL-2	1 m	41	91	0	6	3	0	0
30-84-RL-3	3 m	185	72	0	4	4	0	6

*Au values in ppb, all others in ppm.

CLASSIFICATION:

Disseminated mineralization, not classified.

REFERENCES:

Ferreira, K and Baldwin, D.A.

1984: Mineral deposit documentation in the Lynn Lake area; in Manitoba Energy and Mines, Mineral Resources, Report of Field Activities 1984, p. 12-16.

Gilbert, H.P., Syme, E.C. and Zwanzig, H.V.

1980: Geology of the metavolcanic and volcaniclastic metasedimentary rocks in the Lynn Lake area; Manitoba Energy and Mines, Mineral Resources Division, Geological Paper GP80-1, 118 p.

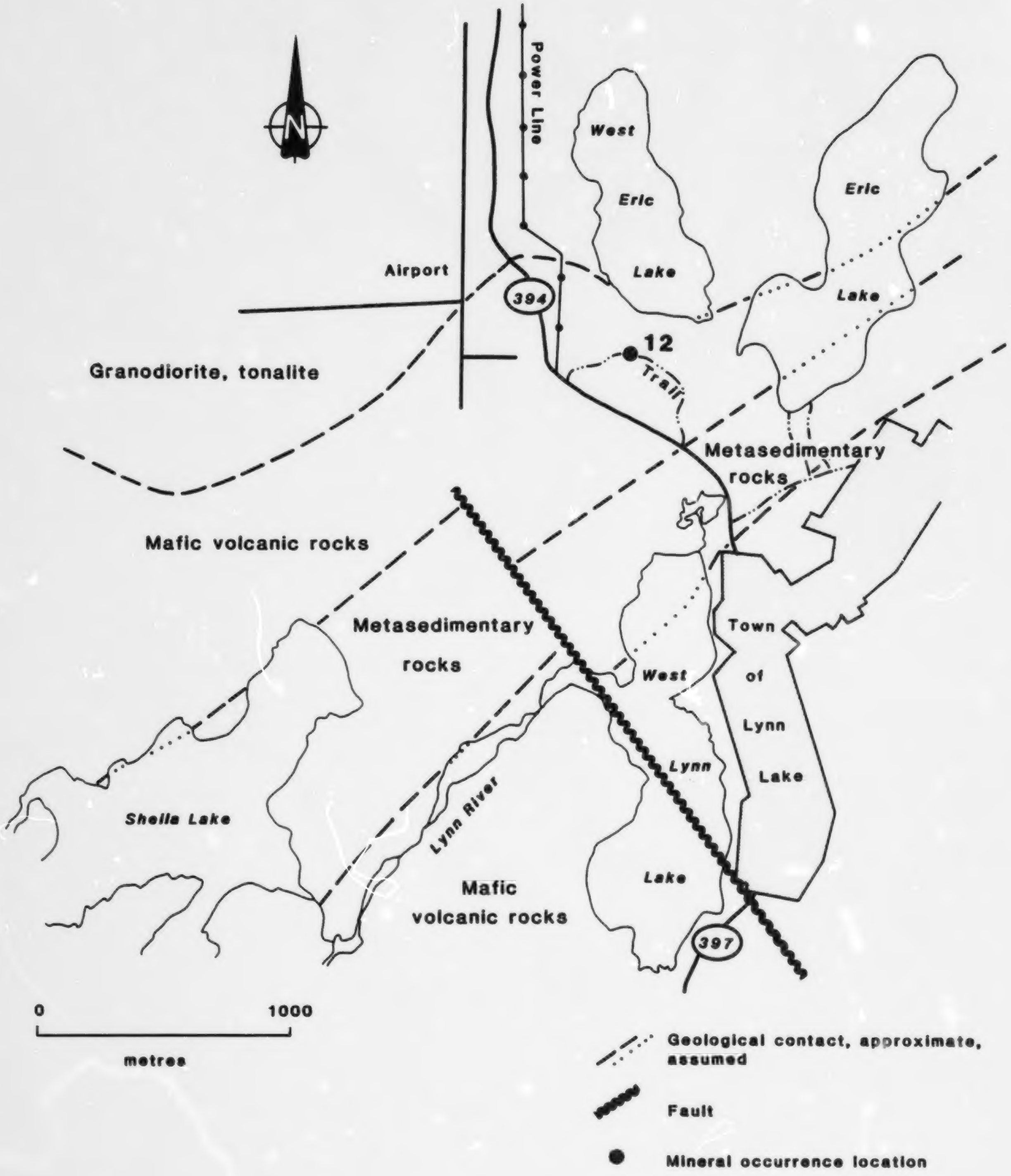

N
Power Line
West
Eric
Lake
Eric
Lake
Airport
394
12
Trail
Granodiorite, tonalite
Metasedimentary
rocks
Mafic volcanic rocks
Metasedimentary
rocks
Town
of
Lynn
Lake
West
Lynn
Lake
Sheila Lake
Lynn River
Mafic
volcanic rocks
397
0
1000
metres
Geological contact, approximate, assumed
Fault
Mineral occurrence location

Figure 12-1: Geology of the area around West Eric Lake (after Gilbert et al., 1980).

LOCATION: 12

NAME:
UTM: 6303420N 374510E
ACCESS: Via bush trail from Hwy. 394.

EXPLORATION SUMMARY:

The area of the mineral occurrence was originally staked in 1945, by Sherritt Gordon Mines Ltd., as part of the ELB group of claims. There are no assessment reports of exploration activity at the occurrence.

GEOLOGICAL SETTING:

The area is underlain by a northeast trending supracrustal sequence comprising massive and brecciated mafic volcanic flows and minor felsic to intermediate tuff that is overlain by an interbedded sequence of greywacke, siltstone and mafic mudstone (Baldwin, 1981; Gilbert *et al.*, 1980). The supracrustal rocks are locally intruded by quartz-feldspar porphyry, and to the north they are intruded by granodiorite and tonalite (Fig. 12-1; Gilbert *et al.* 1980).

MINERALIZATION:

The sulphide mineralization (Fig. 12-1) occurs in felsic tuff that makes up a minor part of the volcanic unit that is composed predominantly of mafic volcanic rocks. The mineralization comprises 1 to 5% disseminated sulphide in the felsic tuff. In decreasing order of abundance the sulphide minerals include: pyrite, pyrrhotite, chalcopyrite and arsenopyrite.

AREA: South of West Eric Lake.
AIRPHOTO: A24142-172

GEOCHEMISTRY:

Three grab samples were collected from the felsic tuff and analyzed for base and precious metals. The results are tabulated below:

Sample	Cu	Zn	Pb	Ag	Au*
1	89	143	18	1	nil
2	278	52	4	2	tr
3	50	27	7	1	nil

*Au reported in g/tonne; all others reported in ppm.

CLASSIFICATION:

Disseminated mineralization, not classified. However, the mineralization could be a distal deposition of sulphide related to a volcanogenic massive sulphide deposit.

REFERENCES:

Baldwin, D.A., Parbery, D., Boden, S. and Michielsen, A.
1985: Mineral deposit studies in the Lynn Lake area and Barrington Lake area; in Manitoba Energy and Mines, Mines Branch, Report of Field Activities 1985, p. 20-28.

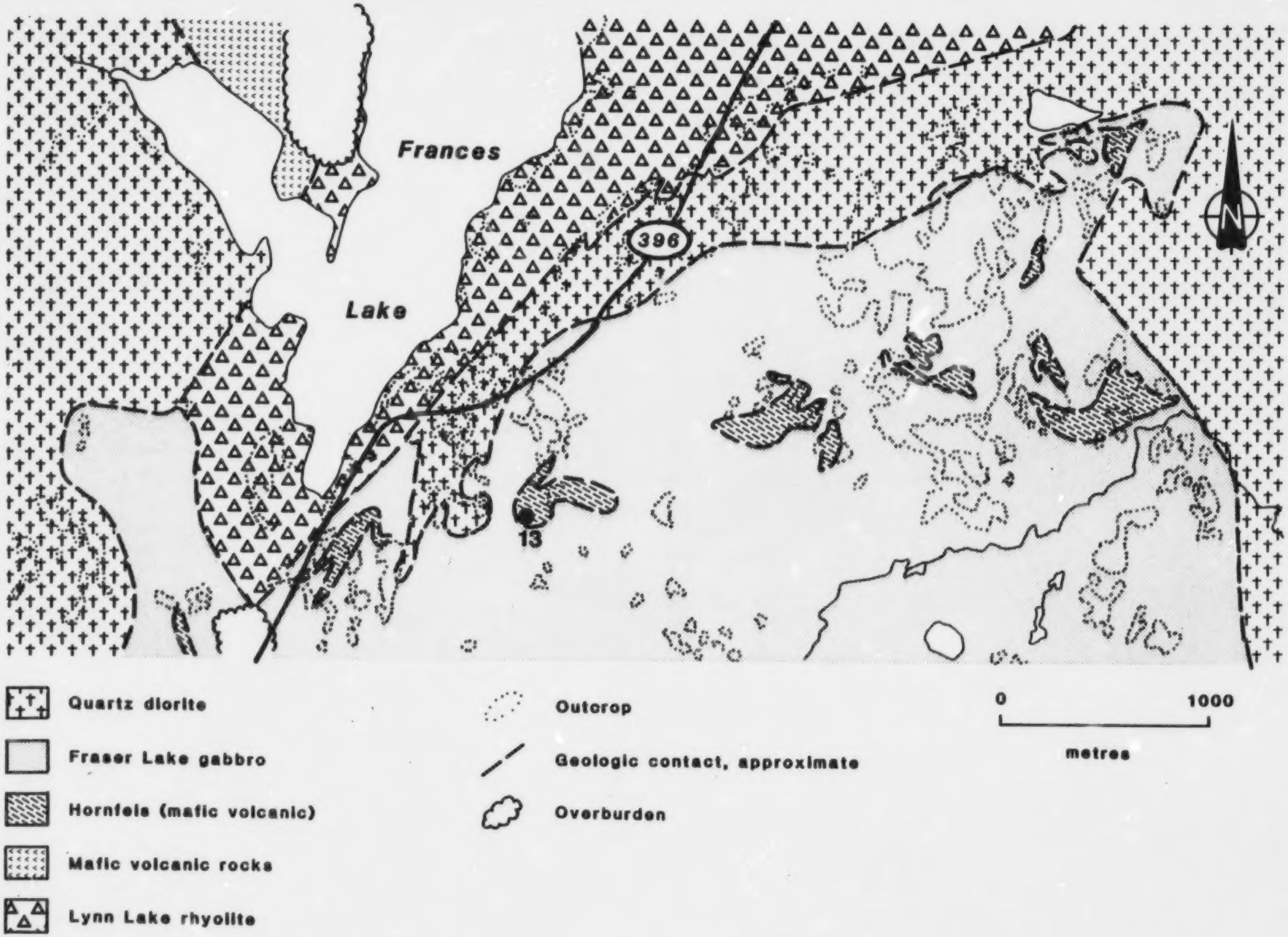

Frances
Lake
396
13
N
Quartz diorite
Fraser Lake gabbro
Hornfels (mafic volcanic)
Mafic volcanic rocks
Lynn Lake rhyolite
Outcrop
Geologic contact, approximate
Overburden
0
1000
metres

Figure 13-1: Geology of the area south and east of the west part of Frances Lake (after Emslie and Moore, 1961).

LOCATION: 13

NAME:

UTM: 6296352N 370765E

ACCESS: Via Hwy. 394 from the town of Lynn Lake and 600 m south from Hwy. 394.

AREA: 8 km southwest of the town of Lynn Lake.

AIRPHOTO: A24299-47

EXPLORATION SUMMARY:

Geophysical surveys, geological mapping and diamond drilling were carried out in 1957 and 1958 by Sherritt Gordon Mines Ltd. The company remapped the area in 1974.

GEOLOGICAL SETTING:

The area is underlain by the Fraser Lake gabbro that intruded Wasekwan Group supracrustal volcanic and volcaniclastic sedimentary rocks (Emslie and Moore, 1961). In the northern half of the gabbro body there are numerous inclusions of hornfelsed supracrustal rocks (Emslie and Moore, 1961) Subsequently, the gabbro was intruded by granodiorite (Fig. 13-1; Emslie and Moore, 1961).

For the most part, the Fraser Lake gabbro consists of uralitized gabbro (Emslie and Moore, 1961). However, the central part of the intrusion comprises a layered and laminated sequence of uralite gabbro, anorthositic gabbro, norite, gabbroic anorthosite and various plagioclase and plagioclase and pyroxene cumulates (written comm., Sherritt Gordon Mines Ltd., map by L. Hulbert, 1974).

MINERALIZATION:

Sulphide mineralization occurs as a lens that is 190 x 18 m in plan, contained in a hornfelsed inclusion of Wasekwan Group supracrustal rocks (Fig. 13-2; written comm. Sherritt Gordon Mines Ltd.) For the most part the mineralization consists of moderate (15 to 50%) pyrrhotite and pyrite with and without chalcopyrite and sphalerite disseminated in the host rock. Within this mineralized zone there are layers or lenses comprising near solid to solid pyrrhotite, pyrite with minor chalcopyrite and sphalerite (written comm. Sherritt Gordon Mines Ltd.).

GEOCHEMISTRY:

No public information available.

CLASSIFICATION:

Stratabound volcanic rock-associated massive sulphide-type mineralization. The sulphide mineralization is contained in a large inclusion of Wasekwan Group supracrustal rocks. Thus, it would appear that the sulphide mineralization is part of the supracrustal volcanic sequence and not genetically related to the intrusive event.

REFERENCES:

Emslie, R.F. and Moore, J.M. Jr.

1961: Geological studies of the area between Lynn Lake and Fraser Lake; Manitoba Department of Mines and Natural Resources, Mines Branch, Publication 59-4, 76 p.

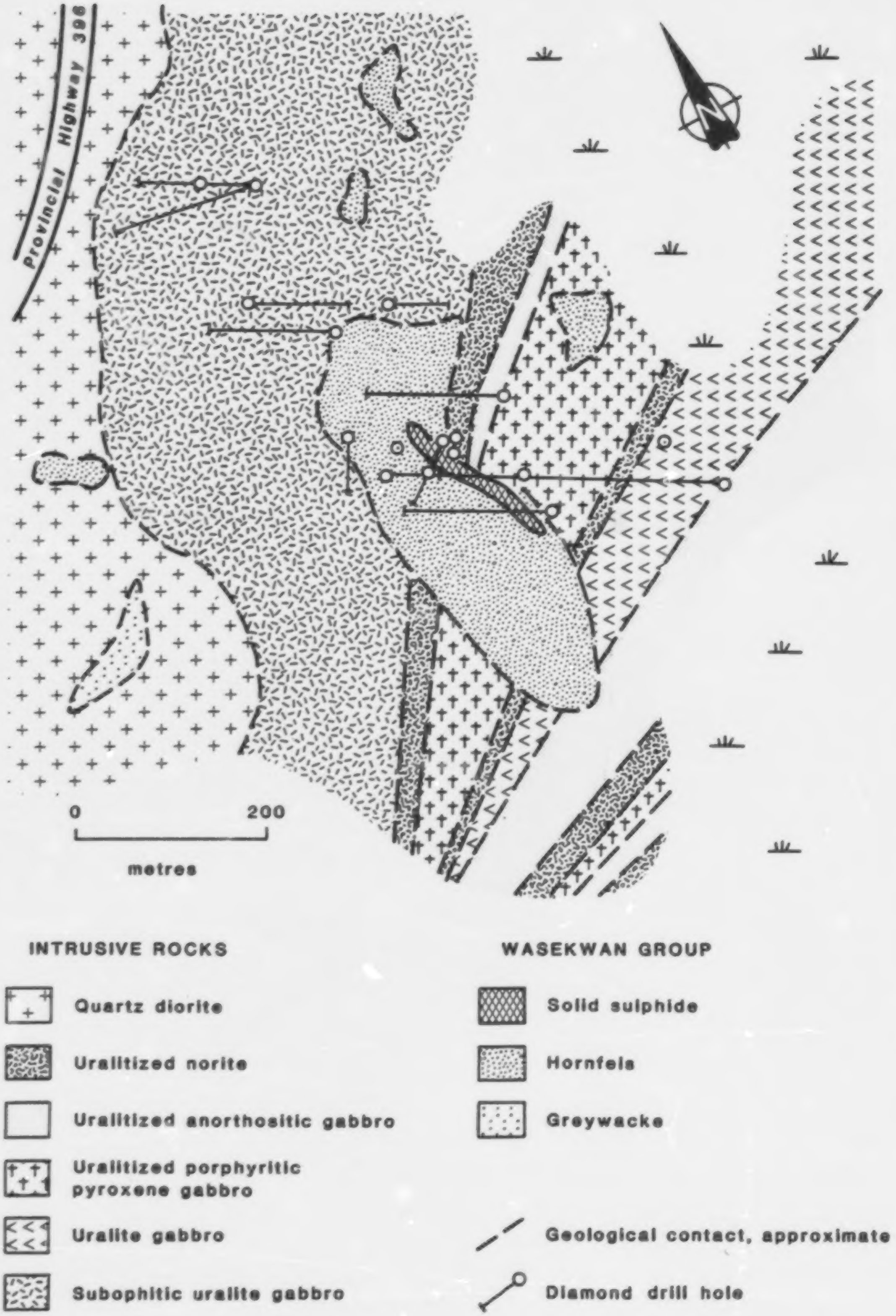

Provincial Highway 396
0
200
metres
INTRUSIVE ROCKS
Quartz diorite
Uralitized norite
Uralitized anorthositic gabbro
Uralitized porphyritic pyroxene gabbro
Uralite gabbro
Subophitic uralite gabbro
WASEKWAN GROUP
Solid sulphide
Hornfels
Greywacke
Geological contact, approximate
Diamond drill hole

Figure 13-2: Geological setting of mineral locality 13 (data from Sherritt Gordon Mines Ltd.).

LOCATION: 14

NAME:

UTM: 6295172N 375621E

ACCESS: Via boat from Manitoba Energy and Mines expediting base at Eldon Lake.

EXPLORATION SUMMARY:

Geophysical surveys, geological mapping and diamond drilling have been conducted in the area south of Eldon Lake by Sherritt Gordon Mines Ltd., however, the information is not publicly available.

GEOLOGICAL SETTING:

The area at the south end of Eldon Lake is underlain by Wasekwan Group supracrustal rocks intruded by diorite, granodiorite, granite and gabbro (Gilbert *et al.* 1980). The supracrustal rocks are north facing metasediments includes greywacke, siliceous argillite, siltstone and chert (Fig. 14-1). A north trending fault at the south end of Eldon Lake has a minimum right lateral displacement of 380 m (Fig. 14-1).

MINERALIZATION:

A 5 m thick solid sulphide lens, of unknown strike length, occurs at the contact between greywacke and chert (Fig. 14-2). In addition, the chert contains minor disseminated sulphide and the siltstone contains two layers of siliceous siltstone that contain minor disseminated sulphide (Fig. 14-2; Ferreira and Baldwin, 1984).

Potassic alteration in the form of potassium feldspar mottling in veinlets and fracture filling occurs in the lower part of the section of greywacke.

Disseminated sulphide in siltstone also crops out near the contact between siltstone and intrusive rocks west of the north trending fault.

The solid sulphide lens and chert contain pyrrhotite, pyrite, sphalerite and chalcopyrite; hydrozincite is prominent on the outcrop surface. The abundance of sulphide in chert increases to about 10% toward the contact between chert and solid sulphide. Pyrrhotite, and pyrite +/- chalcopyrite occur in the siliceous siltstone layers (Fig. 14-2).

GEOCHEMICAL DATA:

Three grab samples from the solid sulphide layer and seven samples from the sulphide layers in siltstone were analyzed for base and precious metals; the results are tabulated below:

AREA: South of Eldon Lake.

AIRPHOTO: 24142-176, 175

Nature of sulphide	Cu	Zn	Pb	Ag	Au
Solid sulphide	855	3530	171	3	23
Solid sulphide	537	1370	59	1	6
Solid sulphide	612	452	108	2	12
Sulphide layers in siltstone	121	154	2	1	18
Sulphide layers in siltstone	119	147	0	0	12
Sulphide layers in siltstone	70	137	0	0	0
Sulphide layers in siltstone	203	148	0	0	0
Sulphide layers in siltstone	64	132	6	0	6
Sulphide layers in siltstone	56	103	0	1	0
Sulphide layers in siltstone	11	123	4	1	0

Au in ppb, all others in ppm.

CLASSIFICATION:

Sedimentary rock-associated stratabound massive sulphide type mineralization.

REFERENCES:

Ferreira, K. and Baldwin, D.A.

1984: Mineral deposit documentation in the Lynn Lake area; in Manitoba Energy and Mines, Mineral Resources, Report of Field Activities 1984, p.12-16.

Gilbert, H.P., Syme, E.C. and Zwanzig, H.V.

1980: Geology of the metavolcanic and volcaniclastic metasedimentary rocks in the Lynn Lake area; Manitoba Energy and Mines, Mineral Resources Division, Geological Paper GP80-1, 118 p.

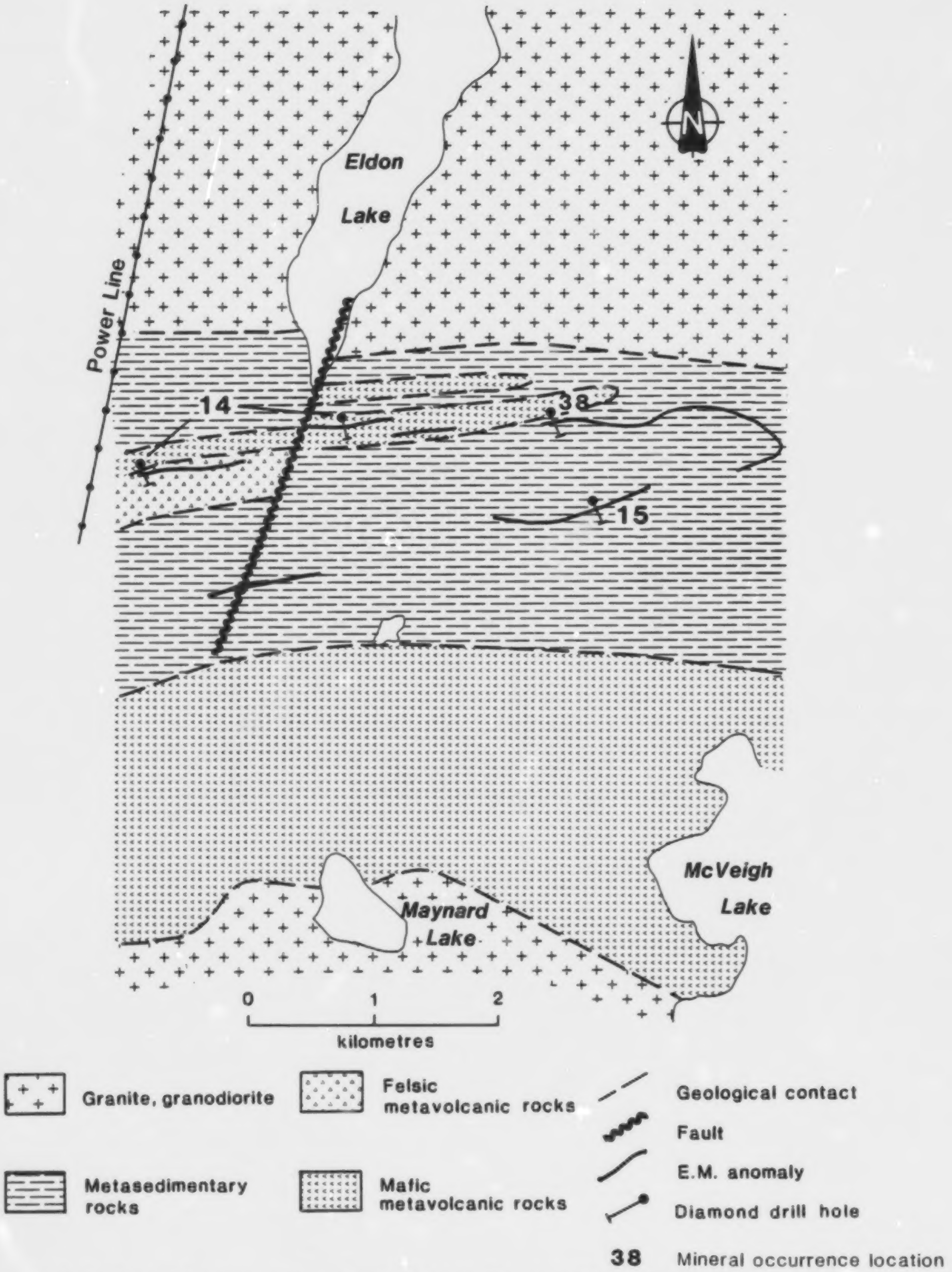

N
Eldon
Lake
Power Line
14
38
15
Maynard
Lake
McVeigh
Lake
0
1
2
kilometres
Granite, granodiorite
Felsic metavolcanic rocks
Metasedimentary rocks
Mafic metavolcanic rocks
Geological contact
Fault
E.M. anomaly
Diamond drill hole
38 Mineral occurrence location

Figure 14-1: Geology of the area south and east of the south end of Eldon Lake (modified from Gilbert et al., 1980).

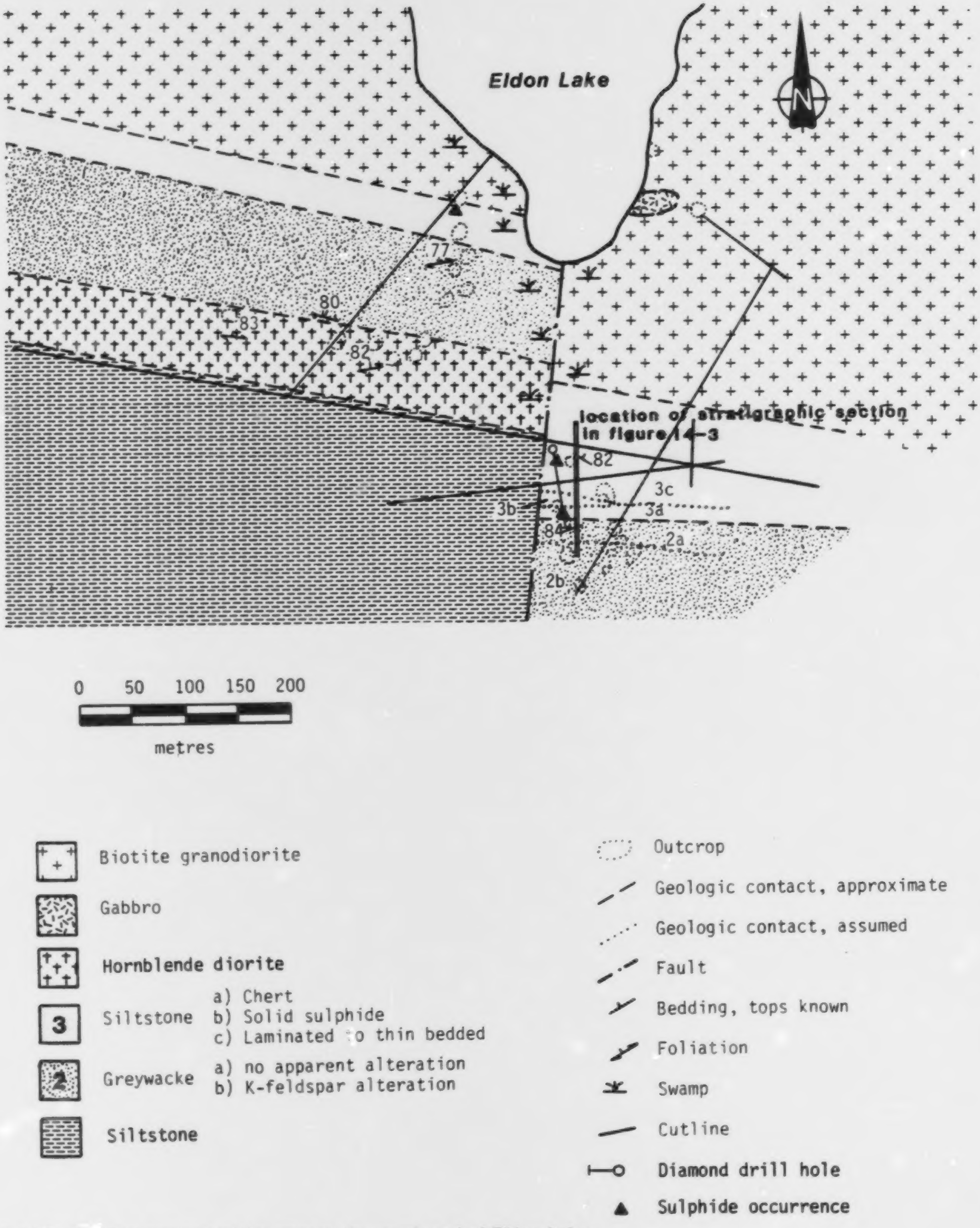

Eldon Lake
N
77
80
83
82
location of stratigraphic section in figure 14-3
82
3c
3d
3b
84
2a
2b
0 50 100 150 200
metres
Biotite granodiorite
Gabbro
Hornblende diorite
3 Siltstone a) Chert b) Solid sulphide c) Laminated to thin bedded
2 Greywacke a) no apparent alteration b) K-feldspar alteration
Siltstone
Outcrop
Geologic contact, approximate
Geologic contact, assumed
Fault
Bedding, tops known
Foliation
Swamp
Cutline
Diamond drill hole
Sulphide occurrence

Figure 14-2: Detailed geology of the area at the south end of Eldon Lake.

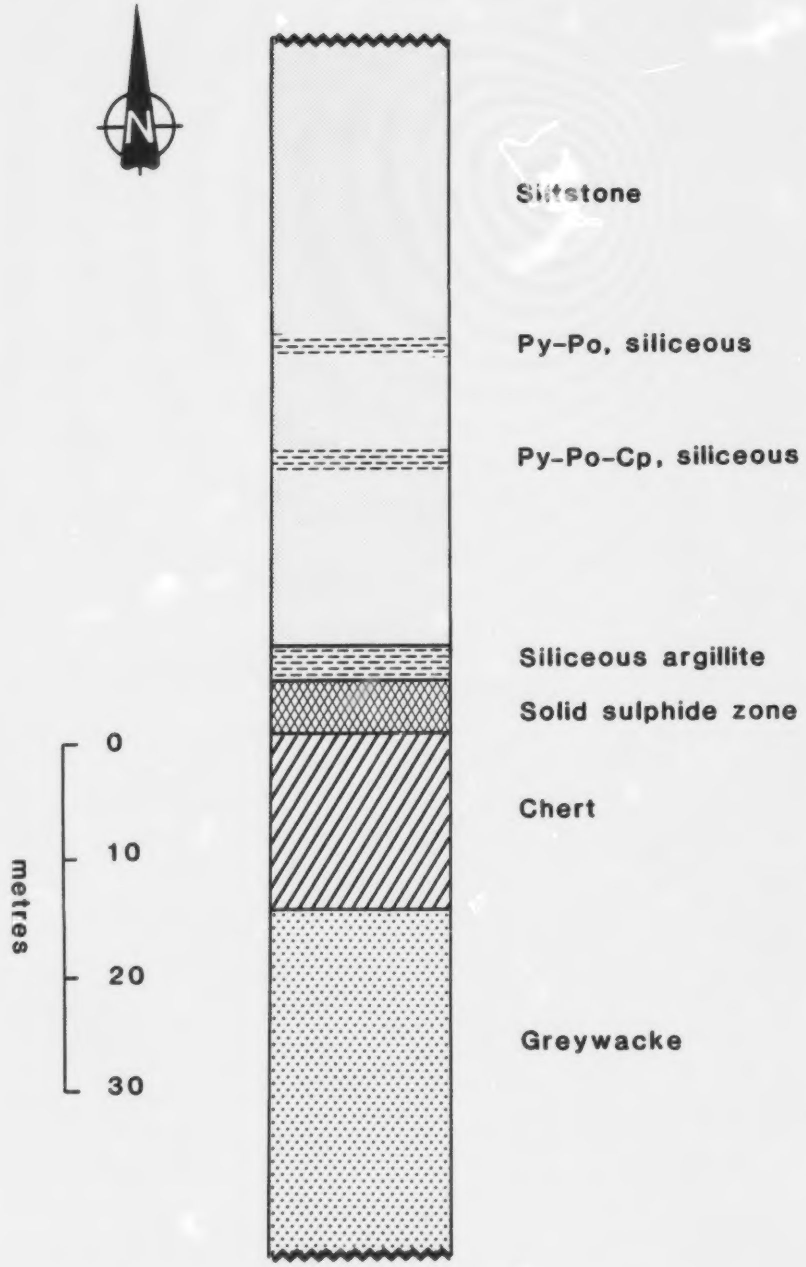

N
Siltstone
Py-Po, siliceous
Py-Po-Cp, siliceous
Siliceous argillite
Solid sulphide zone
Chert
Greywacke
0
10
20
30
metres

Figure 14-3: Stratigraphic section of the geology at the south end of Eldon Lake.

LOCATION: 15

NAME:

UTM: 6294726N 377381E

ACCESS: Boat from Manitoba Energy and Mines expediting base at Eldon Lake to south end of lake and traverse through the bush (Fig. 14-1).

AREA: East-southeast of south end of Eldon Lake.

AIRPHOTO: A24142-176

EXPLORATION SUMMARY:

The ground was originally staked in 1939 and 1940 on behalf of Sherritt Gordon Mines Ltd.. In 1958 the ground was part of a group of leased claims. Exploration work included geophysical surveys and one diamond drill hole.

GEOLOGICAL SETTING:

The area is underlain by east-trending northerly dipping metasedimentary rocks and minor intercalated mafic and felsic volcanic rocks (Fig. 14-1). The metasedimentary rocks include hornblende-bearing greywacke and siltstone, biotite-bearing greywacke, siltstone and mudstone and mafic mudstone (Gilbert *et al.*, 1980). Felsic volcanic rock is mapped as rhyolite tuff (Gilbert *et al.*, 1980), but the thin laminated nature of these rocks, their occurrence in a sedimentary sequence and their paucity, suggests they are probably felsic siltstone derived from reworked felsic pyroclastic material. Mafic volcanic possibly flow rocks are massive, porphyritic to aphyric and form units 50 to 100 m thick (Gilbert et. al., 1980). At the occurrence, the rocks are felsic siltstone with minor mafic mudstone, and mafic dykes.

MINERALIZATION:

Mineralization is represented by 30 cm of 25 to 30% disseminated pyrite and pyrrhotite in felsic siltstone with flanking pyrrhotite stringers (written communication, Sherritt Gordon Mines Ltd., 1985). Several short drill hole intersections of 5 to 10% disseminated pyrrhotite were also encountered on foliation planes in felsic siltstone.

GEOCHEMICAL DATA:

No public information

CLASSIFICATION:

Disseminated sulphide mineralization not classified. The sulphide stringers are probably metamorphic mobilizate.

REFERENCES:

Gilbert, H.P., Syme, E.C. and Zwanzig, H.V.

1980: Geology of the metavolcanic and volcaniclastic metasedimentary rocks in the Lynn Lake area; Manitoba Energy and Mines, Mineral Resources Division, Geological Paper GP80-1, 118 p.

LOCATION: 16

NAME:

UTM: 6294068N 352216E

ACCESS: Via float plan from Lynn Lake.

AREA: 25 km southwest of Lynn Lake under east part of small lake (Fig. 16-1).

AIRPHOTO: A24298-15

EXPLORATION SUMMARY:

Sherritt Gordon Mines Ltd. carried out a ground geophysical survey during the winter of 1960-61 and drilled two DDH during February 1961.

GEOLOGICAL SETTING:

The area is covered by 3-8 m of glacial overburden. From diamond drill hole reports (A.F. 91028) it would appear that the bedrock comprises mafic and intermediate volcanic rock. It seems most likely that the strike of the geology is northeasterly. From west to east it appears that the area is underlain by hornblende-phyric mafic volcanic rocks and intermediate volcanic rocks.

MINERALIZATION:

The mineralization is hosted by intermediate volcanic rocks. The mineralized zone ranges in thickness from 21 to 27 m and appears to begin close to the contact between the mafic volcanic rocks and the intermediate volcanic rocks. Most of the mineralization comprises stringers and minor to moderate (3 to 40%) disseminated pyrite and pyrrhotite in a hornblende, biotite, garnet matrix. Within the mineralized zone there is a 0.3 - 0.5 m thick layer of banded solid (75 to 85%) pyrite and pyrrhotite.

GEOCHEMICAL DATA:

No public information.

CLASSIFICATION:

Volcanic rock-associated stratabound massive sulphide type mineralization.

REFERENCES:

Assessment File 91038
Manitoba Energy and Mines, Minerals Division.

LOCATION: 17

NAME: FRANCES LAKE DEPOSIT

UTM: 6299821N 371455E

ACCESS: Via Hwy. 396 to boat launch at south end of Frances Lake, boat to northwest shore of lake.

AREA: Northwest shore Frances Lake.

AIRPHOTO: A24299-46

EXPLORATION HISTORY:

The ground was originally staked and assigned to International Mining Corporation in 1946. Geophysical surveys over the claim group were completed in 1946 but no magnetic survey was done directly over the deposit (A.F. 91419). The results of diamond drilling in 1947 are unknown. In 1955 and 1956 geophysical surveys and diamond drilling (20 DDH) were undertaken on the property. The claims were cancelled in 1973 (Mineral Inventory Card 64C/14 Zn 1).

In 1976 the ground was restaked for Granges Exploration Ltd. and Manitoba Mineral Resources Ltd. (joint venture). Between 1976 and 1979, 24 DDH tested a zone of mineralization 243 m in length (Fig. 17-1), to a depth of 275 m.

At present the property is jointly held by LynnGold Resources Inc., Granges Exploration Ltd. and Manitoba Mineral Resources Ltd.

GEOLOGICAL SETTING:

The area is underlain by a thick felsic volcanic sequence known as the Lynn Lake Rhyolitic Complex (Fig. 17-1). Overlying the rhyolite there is an interlayered sequence consisting of massive and porphyritic basalt flows and breccia, and porphyritic felsic volcanic flows and tuffs (Ferreira, 1986; Gilbert, *et al.*, 1980).

The deposit occurs at or close to the contact between the Lynn Lake Rhyolitic Complex and the overlying interlayered mafic to felsic volcanic sequence. Rocks directly associated with the mineralization include sericite schist, staurolite-kyanite bearing sericite schist, ghanite-bearing silicic schist and staurolite-garnet-biotite schist.

MINERALIZATION:

The mineralization consists of several thin near solid-to solid-sulphide lenses and solid sulphide stringers. The mineralogy of the mineralized layers and stringers is pyrite, pyrrhotite, chalcopyrite and sphalerite. The sulphide stringers are probably sulphide mobilizate. Exploration of the property has outlined a mineralized zone 240 m in length to a depth of 275 m.

GEOCHEMICAL DATA:

136 000 tonnes grading 0.48% Cu, 6.6% Zn and minor gold and silver (Manitoba Mineral Resources Ltd., Annual Report 1979-80).

CLASSIFICATION:

Volcanic rock-associated stratabound massive sulphide deposit.

REFERENCES:

Assessment File 91419
Manitoba Energy and Mines, Minerals Division.

Ferreira, K.
1986: Geological investigations in the Sheila Lake-Margaret Lake area; in Manitoba Energy and Mines, Minerals Division, Report of Field Activities 1986, p. 8-12.

Gilbert, H.P., Syme, E.C. and Zwanzig, H.V.
1980: Geology of the metavolcanic and volcaniclastic metasedimentary rocks in the Lynn Lake area; Manitoba Energy and Mines, Mineral Resources Division, Geological Paper GP80-1, 118p.

Manitoba Mineral Resources Ltd.
Annual Report 1979-1980

Manitoba Inventory Card 64C/14 Zn 1
Manitoba Energy and Mines.

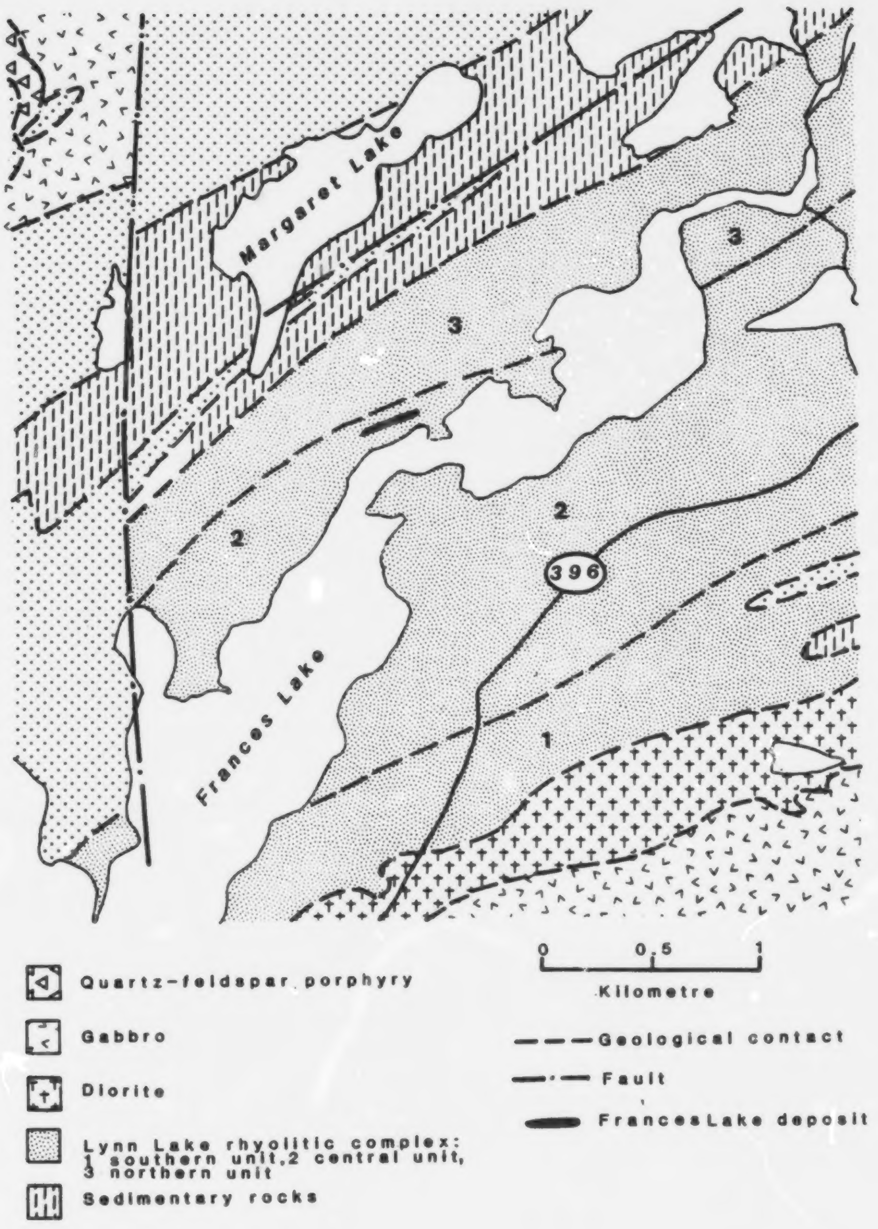

Margaret Lake
3
3
2
2
396
Frances Lake
1
0
0.5
1
Kilometre
Quartz-feldspar porphyry
Gabbro
Diorite
Lynn Lake rhyolitic complex; 1 southern unit, 2 central unit, 3 northern unit
Sedimentary rocks
Mafic volcanic rocks
Geological contact
Fault
Frances Lake deposit

Figure 17-1: Geological setting of the Frances Lake deposit (Geology after Gilbert et al., 1980; Sherritt Gordon Mines Ltd.).

LOCATION: 18

NAME: GOODENOUGH (SHERLYNN)
UTM: 6307583N 374742E
ACCESS: Via Hwy. 394 and 398 from town of Lynn Lake.

AREA: West shore of Burge Lake.
AIRPHOTO: A24142-172

EXPLORATION SUMMARY:

The ground was staked in February, 1947 by A.L. Parres and during the same year an option agreement was established between A.L. Parres and H.L. Goodenough; geophysical surveys and geological mapping were conducted. In 1948, 1951, 1952 and 1954 diamond drilling was reported and in 1954 the claims were surveyed (M.I. Card 64C/14 Cu 3). During 1954 and 1955 Sherlynn Mines, gained control of the property. In 1954 Sherritt Gordon Mines Ltd. reported a drilling program totalling 1592 m (Sherritt Gordon Mines Ltd., Annual Report 1954). Between 1955 and 1978 it appears that no exploration work was done on the property. In 1978 and 1980 Granges Exploration, in option agreement with Sherlynn Mines, conducted a drilling program totalling 333 m. No further work has been filed for assessment. The ground is presently held by Order in Council Lease by Sherlynn Mines Ltd.

GEOLOGICAL SETTING:

The area is underlain by a northwest-facing sequence of mafic and intermediate volcanic rocks, intruded by a large granodiorite-tonalite batholith, and overlain by a conglomerate and sandstone succession (Gilbert, *et al.*, 1980). In the vicinity of the deposit, the rocks form a northeast striking sequence largely comprising intermediate flows, pyroclastic rocks and redeposited pyroclastic rocks with lesser felsic flows and mafic and felsic dykes (Fig. 18-1).

The sulphide deposit is hosted in quartz, biotite+/-chlorite schist adjacent to a large granodiorite intrusion. The schist is typified by a zoned alteration consisting of Mg-rich chlorite surrounded by a zone of sericite and quartz (Mandziuk, 1983). Adjacent to the granodiorite, the schist is silicified and the outer margin of the intrusion is locally mineralized (Milligan, 1960).

MINERALIZATION:

The mineralization consists of sulphide veinlets and disseminated sulphide throughout the quartz, biotite+/-chlorite schist.

GEOCHEMICAL DATA:

After completion of the 1954 drilling program 170 000 tonnes grading 2.63% Cu, 1.21% Zn and 2.06 g/tonne Au had been outlined (Sherritt Gordon Mines Ltd., Annual Report 1954).

CLASSIFICATION:

Alteration zone of the type that is associated with a stratabound massive sulphide type deposit.

REFERENCES:

Assessment Files 91477, 91835, 92478, 92480
Manitoba Energy and Mines, Minerals Division.

Gilbert, H.P., Syme, E.C. and Zwanzig, H.V.
1980: Geology of the metavolcanic and volcaniclastic metasedimentary rocks in the Lynn Lake area; Manitoba Department of Energy and Mines, Mineral Resources Division, Geological Paper GP80-1, 118 p.

Mandziuk, W.S.
1983: The Sherlynn deposit, Lynn Lake, Manitoba - A Stratiform copper-zinc sulphide deposit in Proterozoic greenstones; University of Manitoba, B.Sc. thesis (unpublished), 29 p.

Milligan, G.C.
1960: Geology of the Lynn Lake district, Manitoba; Manitoba Department of Mines and Natural Resources, Mines Branch, Publication 57-1, 317 p.

Mineral Inventory Card 63C/14 Cu 3
Manitoba Energy and Mines, Minerals Division.

Sherritt Gordon Mines Ltd.
1954: Annual Report.

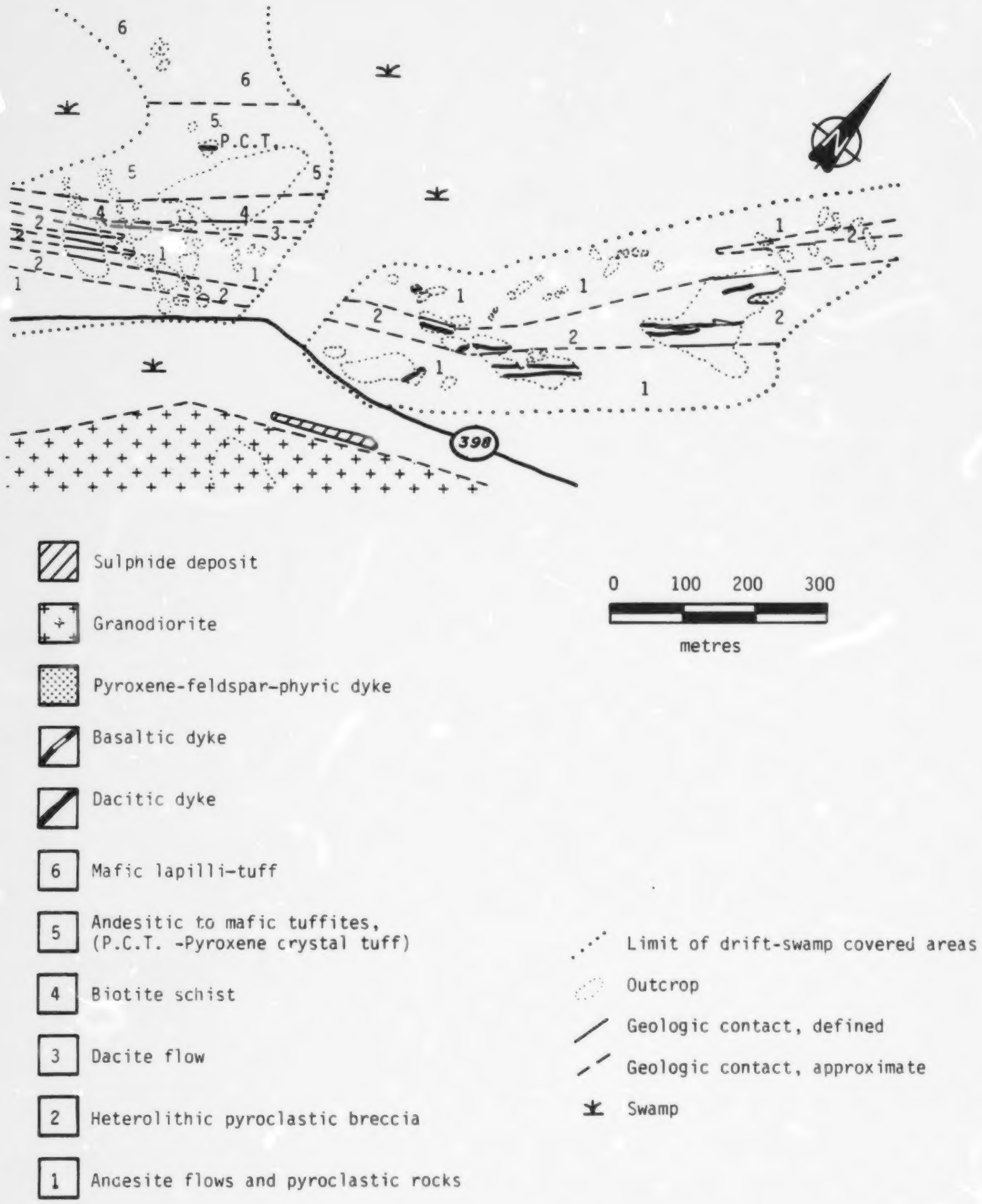

6
6
5
P.C.T.
5
5
4
4
3
2
2
2
1
1
1
2
398
1
1
1
2
2
2
1
2
1
0 100 200 300
metres
▨ Sulphide deposit
Granodiorite
Pyroxene-feldspar-phyric dyke
Basaltic dyke
Dacitic dyke
6 Mafic lapilli-tuff
5 Andesitic to mafic tuffites, (P.C.T. -Pyroxene crystal tuff)
4 Biotite schist
3 Dacite flow
2 Heterolithic pyroclastic breccia
1 Andesite flows and pyroclastic rocks
Limit of drift-swamp covered areas
Outcrop
Geologic contact, defined
Geologic contact, approximate
Swamp

Figure 18-1: Geological setting of the Goodenough deposit (after Mandziuk, 1983).

LOCATION: 19

NAME:

UTM: 6303420N 373679E

ACCESS: Hwy. 398 to town of Lynn Lake Airport and gravel road to Calm Air hangar at the airport.

EXPLORATION SUMMARY:

The history of staking dates back to 1946 and since then the ground has been restaked several times. Geological and magnetometer surveys were first conducted in 1947. Magnetometer and electromagnetic surveys were performed in 1957 and 1958, respectively (Bateman, 1945). Nor-Acme Gold Mines Ltd. drilled one diamond drill hole in 1960 (A.F. 91026). Since that time there has not been any recorded assessment work. The mineral occurrence lies inside the right-of-way boundaries of the Lynn Lake airport and thus the ground is not open for staking.

GEOLOGICAL SETTING:

The area is underlain by Wasekwan Group mafic metavolcanic massive flows and flow breccia intruded by a Post-Sickle granitic body comprising granodiorite, tonalite, aplite and aplitic granite (Fig. 19-1; Gilbert *et al.*, 1980). The mineral occurrence is located in the metavolcanic rocks close to the boundary with aplite and aplitic granite phases of the intrusive body.

MINERALIZATION:

The drill log records that the occurrence consists of 64 m of siliceous greywacke that is slightly mineralized with pyrite and containing numerous quartz veinlets (A.F. 91026).

AREA: 50 m west of south end of north-south runway at Lynn Lake airport.

AIRPHOTO: A24142-172

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization not classified.

REFERENCES:

Assessment File 91026
Manitoba Energy and Mines, Minerals Division.

Bateman, J.D.
1945: McVeigh Lake area, Manitoba; Canada Department of Mines and Resources, Mines and Geology Branch, Geological Survey Paper 45-14, 34 p.

Manitoba Inventory Card 64C/14 Au2
Manitoba Energy and Mines.

Gilbert, H.P., Syme, E.C. and Zwanzig, H.V.
1980: Geology of the metavolcanic and volcaniclastic metasedimentary rocks in the Lynn Lake area; Manitoba Energy and Mines, Mineral Resources Division, Geological Paper GP80-1, 118 p.

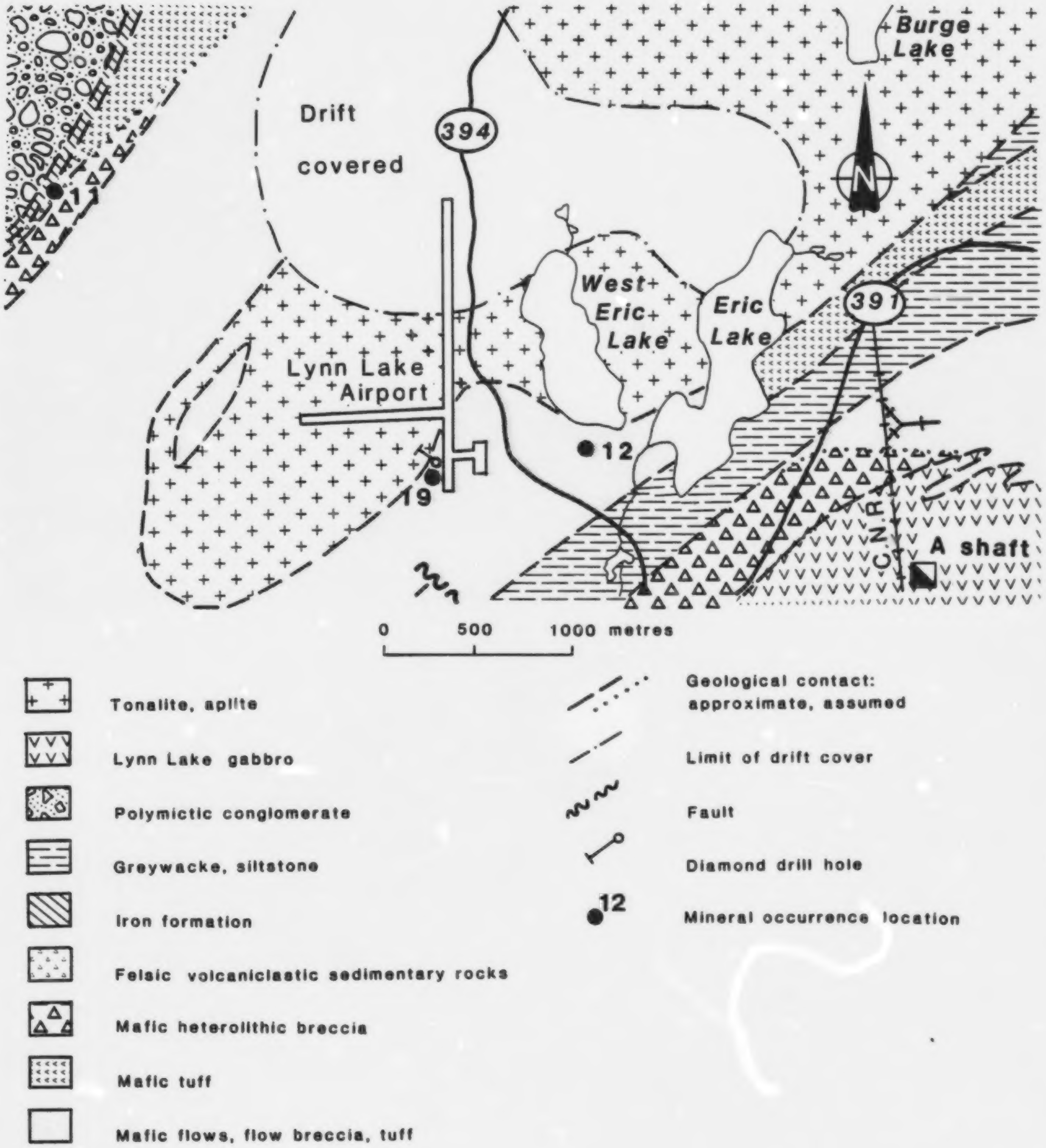

Burge Lake
Drift covered
394
West Eric Lake
Eric Lake
391
Lynn Lake Airport
12
19
1
C N R
A shaft
0 500 1000 metres
Tonalite, aplite
Lynn Lake gabbro
Polymictic conglomerate
Greywacke, siltstone
Iron formation
Felsic volcaniclastic sedimentary rocks
Mafic heterolithic breccia
Mafic tuff
Mafic flows, flow breccia, tuff
Geological contact: approximate, assumed
Limit of drift cover
Fault
Diamond drill hole
12
Mineral occurrence location

Figure 19-1: Geology of the area around West Eric Lake (after Gilbert et al., 1980).

LOCATION: 20

NAME:

UTM: 6291825N 372361E

ACCESS: Via float plane from Lynn Lake to Franklin Lake and bush trail to Lost Lake (Map MDS-6).

AREA: 100 m south of Lost Lake.

AIRPHOTO: A24142-177

EXPLORATION SUMMARY:

The area around Lost Lake was originally staked in 1939 as part of the Ace Claim Group. Subsequently, the mineral occurrence was restaked (Mail 88 claim) as part of the surveyed Mail Claim Group. There are no records of exploration work on the Mail 88 claim until 1983 when Sherritt Gordon Mines Ltd. mapped the property and drilled three diamond drill holes. In 1986 the Mail Claim Group was transferred to Shergold Inc. and subsequently it was transferred to LynnGold Resources Inc. The claims are currently held in good standing.

GEOLOGICAL SETTING:

The regional geology comprises a 2 km thick, east trending sequence of interlayered basalt flows, flow breccia, mafic to intermediate volcaniclastic metasedimentary rocks, siltstone and rhyolite. The sequence forms the structural base of the southern limit of the Lynn Lake metavolcanic belt (Gilbert *et al.*, 1980). The area surrounding Lost Lake is underlain by basalt flows, mafic to intermediate volcaniclastic metasedimentary rocks, chlorite schist and rhyolite. The mineralization occurs in the volcaniclastic metasedimentary rocks and basalt flows (Fig. 20-1). A major east trending fault forms the boundary between volcaniclastic metasedimentary rocks and basalt flows. Shear zones with associated mineralization occur only in the volcaniclastic metasedimentary and chlorite schist unit. These shear zones occur within 50 m of, and are parallel to, the fault. This fault also forms the southern boundary of the 190 m wide zone of folded rocks in the area of the Ace Vein (location 8), 1 km to the east of the Lost Lake occurrence.

MINERALIZATION:

The mineralization at Lost Lake consists of four separate zones (Fig. 20-1). Zone A comprises a mineralized quartz vein and minor disseminated pyrite and pyrrhotite in volcaniclastic metasedimentary rocks adjacent to the quartz vein. Zone B consists of minor (1 to 2%) disseminated pyrite, pyrrhotite and rare sphalerite in a 10 m wide sheared and silicified zone in volcaniclastic metasedimentary rocks. The shear zone consists of layers that have a pronounced schistosity that alternate with layers of brecciated rock. Silicification is pervasive in the shear zone as is the development of irregular shaped and rootless folded quartz lenses. Mineralized Zones C and D are similar to Zone B but host rocks are chlorite schist and basalt flows respectively (Fig. 20-1).

GEOCHEMICAL DATA:

No public information available.

CLASSIFICATION:

Zone A is a single vein type mineralization. Zones B, C, D are disseminated mineralization that have not been classified because the relationship of the shearing, silicification and the mineralization has not been determined.

REFERENCES:

Gilbert, H.P., Syme, E.C. and Zwanzig, H.V.

1980: Geology of the metavolcanic and volcaniclastic metasedimentary rocks in the Lynn Lake area; Manitoba Energy and Mines, Mineral Resources Division, Geological Paper GP80-1, 118 p.

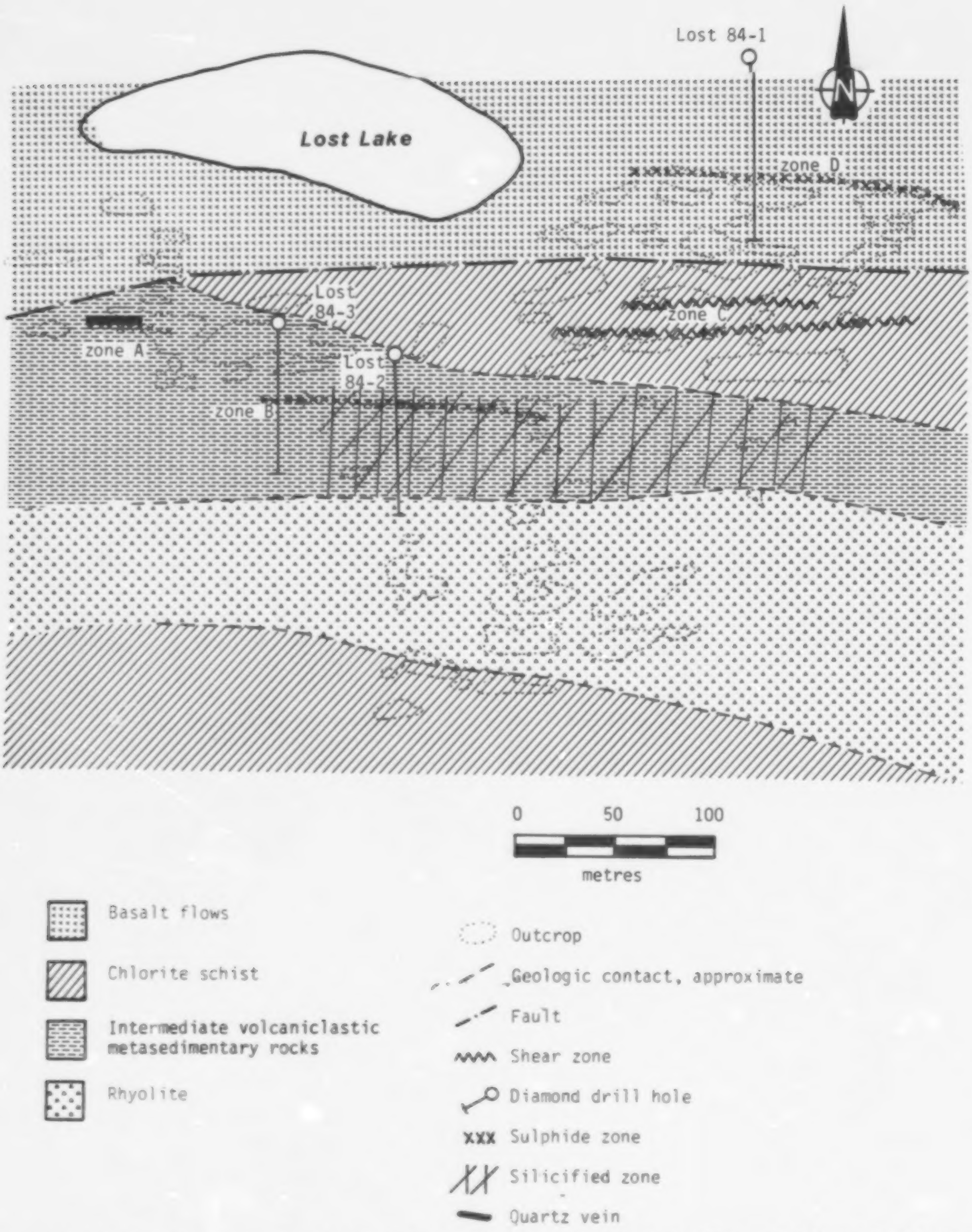

Lost 84-1
N
Lost Lake
zone D
Lost 84-3
zone C
zone A
Lost 84-2
zone B
0
50
100
metres
Basalt flows
Chlorite schist
Intermediate volcaniclastic metasedimentary rocks
Rhyolite
Outcrop
Geologic contact, approximate
Fault
Shear zone
Diamond drill hole
XXX Sulphide zone
Silicified zone
Quartz vein

Figure 20-1: Geology of the area around Lost Lake (modified from Gilbert et al., 1980; and data supplied by Sherritt Gordon Mines Ltd., 1986).

LOCATION: 21

NAME: JOHNSON VEIN
UTM: 6291640N 377578E
ACCESS: Via float equipped aircraft from Lynn Lake
AREA: North shore Foster Lake.
AIRPHOTO: A14566-652

EXPLORATION SUMMARY:

The ground was staked by Austin McVeigh and F.E. Johnson in 1939; the claims were surveyed in the same year. In 1945 the property was transferred to E.L. Brown who assigned it to Sherritt Gordon Mines Ltd.

In 1940 exploration work comprised trenching and 45 DDH (Fig. 21-1). Further drilling was done in 1941 (Bateman, 1945) but drill hole locations do not appear to have been recorded. The claims were cancelled in 1966. The ground was restaked in 1973 by Sherritt Gordon Mines Ltd. and since then geophysical surveys, geological mapping and diamond drilling have been conducted. The property is presently held by LynnGold Resources Inc.

GEOLOGICAL SETTING:

The area is underlain by mafic volcanic rocks and mafic to felsic volcaniclastic sedimentary rocks that were intruded by granite, granodiorite and gabbro (Gilbert *et al.*, 1980). The supracrustal rocks form an easterly striking north dipping layered sequence. The stratigraphy of the layered sequence was investigated by Ferreira (1986) and is summarized in Table 21-1. The geology of the property and pre-1945 exploration workings are shown on Figure 21-1.

The property is located within the limits of a 100 to 500 m wide, 45 km long, zone that is characterized by a S-fabric that is more pronounced than the S-fabric in rocks outside the zone. This zone transgresses lithologic boundaries on the south flank of the Lynn Lake metavolcanic belt; it has been termed the "Johnson Shear Zone" (Bateman, 1945). In addition to the intense S-fabric, rocks in the zone have been locally silicified and chloritized and in some places they are altered to talc-carbonate schist (Ferreira, 1986). The zone hosts quartz veining and sulphide mineralization (Baldwin, 1987; Ferreira, 1986). Local occurrence of 1 to 25 cm wide zones of pseudotachylyte and breccia in a pseudotachylyte matrix suggest that the Johnson Shear Zone consists of widely spaced shear zones.

MINERALIZATION:

The mineralization is hosted in sedimentary rocks and the Johnson Vein. It occurs preferentially where fracture cleavage is well developed (Ferreira, 1986) in felsic sedimentary rocks and to a lesser degree in intermediate sedimentary rocks. Pyrrhotite is generally present in amounts of 1 to 5% but occurs locally in concentrations of up to 20%; it is accompanied by trace amounts of pyrite and chalcopyrite, and rare arsenopyrite. Sulphide minerals occur as fine grained aggregates that form streaks on foliation planes. Deformed sulphide-bearing felsic rock occur as lenses in intermediate rocks. For the most part the quartz vein is not mineralized, but locally it contains up to 10% disseminated sulphide.

Alteration of the sedimentary sequence is most intense south of Reservoir Lake (NTS 64C/15) where the original mineralogy of the felsic sedimentary rocks is replaced by talc, carbonate and sericite (Table 21-1). Elsewhere, alteration is most intense where fracture cleavage is well developed and thus has a habit similar to that of the sulphide mineralization. Silicification is common in the intermediate sedimentary rocks and ubiquitous in the felsic sedimentary rocks. The gradational nature of the lithologic boundaries between, and the similarities in textures and mafic mineral content of, the mafic and intermediate rocks suggest that the intermediate rocks may in part be altered mafic rocks. Chloritization is common in the mafic sedimentary rocks.

GEOCHEMICAL DATA:

Au values obtained for samples collected from the zone of disseminated sulphide range from 53 to 755 ppb. Samples collected outside the mineralized zone have Au values ranging from 0 to 32 ppb. A summary of Au values are presented in Table 21-2 and sample locations are shown on Figure 21-2.

CLASSIFICATION:

Although the mineralization is contained in deformed supracrustal rocks and is spatially associated with the Johnson Vein, it has yet to be demonstrated what relationships, if any, exist between the mineralization, emplacement of the vein and shearing. Thus the mineralization is designated disseminated mineralization that has not been classified.

REFERENCES:

Baldwin, D.A.
1987: Gold mineralization associated with the Johnson Shear Zone; in Manitoba Energy and Mines, Minerals Division, Report of Field Activities 1987, p. 7-11.

Bateman, J.D.
1945: McVeigh Lake area, Manitoba; Canada Department of Mines and Resources, Mines and Geology Branch, Geological Survey Paper 45-14, 34 p.

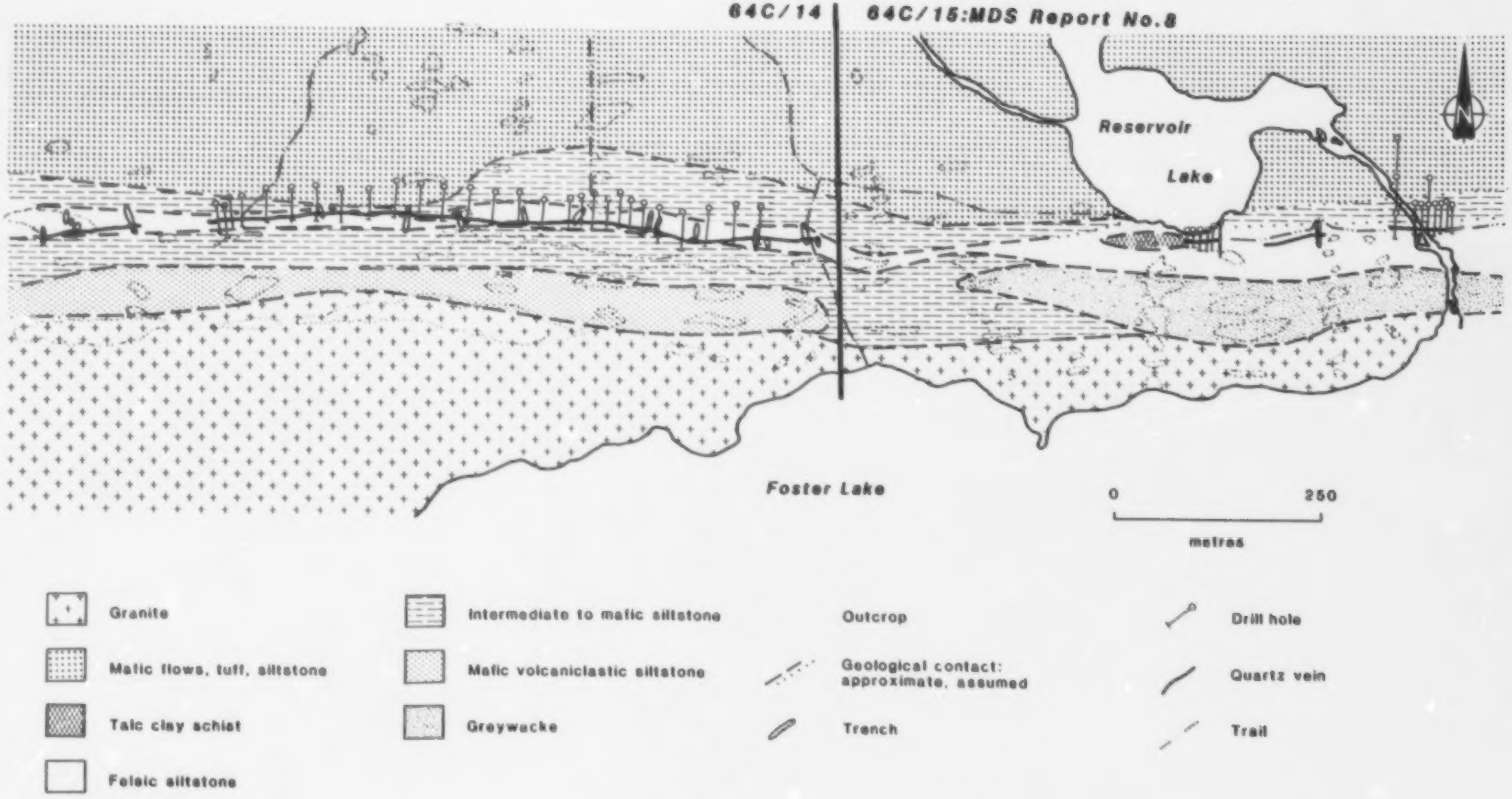

64C/14
64C/15:MDS Report No.8
Reservoir
Lake
Foster Lake
0
250
metres
Granite
Mafic flows, tuff, siltstone
Talc clay schist
Felsic siltstone
Intermediate to mafic siltstone
Mafic volcaniclastic siltstone
Greywacke
Outcrop
Geological contact: approximate, assumed
Trench
Drill hole
Quartz vein
Trail

Figure 21-1: Geology of the area north and west of Foster Lake (modified from Bateman, 1945; Gilbert et al., 1980; and data supplied by Sherritt Gordon Mines Ltd., 1986).

Ferreira, K.
1986: Geological investigations in the Sheila Lake-Margaret Lake area; in Manitoba Energy and Mines, Minerals Division, Report of Field Activities 1986, p. 8-12.

Gilbert, H.P., Syme, E.C. and Zwanzig, H.V.
1980: Geology of the metavolcanic and volcaniclastic metasedimentary rocks in the Lynn Lake area; Manitoba Energy and Mines, Mineral Resources Division, Geological Paper GP80-1, 118 p.

Table 21-1: Stratigraphy at the Johnson Vein Property

Unit	Lithology
MAFIC VOLCANIC ROCKS	Tuffs and flows, dark green, very fine grained; tuffs are moderately well foliated, flows are massive to poorly foliated and chloritic; flows may contain 1 to 2 mm plagioclase amygdales and/or phenocrysts. Thickness: 213 to 366 m
GABBRO	Coarse grained, dark green. Thickness: 30 m
TALC-CARBONATE-CLAY SCHIST	Pale green-cream, very fine-to medium-grained; schistose with small-scale irregularities in schistosity; white talc (sericite?), carbonate and clay minerals in feathery sheaves and as fine grained replacements of plagioclase and felsic lithic fragments; 15% pale-medium green streaks in mm-widths and irregular lengths; 1% quartz in thin drawn-out veinlets; no sulphide minerals observed. Thickness: Min. 6 m
FELSIC SEDIMENTARY ROCKS,rusty, deformed	Light grey to dark green, very fine grained; very well foliated, laminated to thin bedded; tough, siliceous, plagioclase-rich, 5 to 10% very fine grained biotite; 5 to 10% very fine grained hornblende usually concentrated in layers; magnetic; up to 20% (average 5 to 10%) pyrrhotite, trace pyrite, (chalcopyrite), rare arsenopyrite in fine grained aggregates forming streaks along foliation planes; rare quartz veinlets 5 cm wide, discontinuous, associated with irregular chlorite blebs; small-scale recumbent folding, fold axes 225°/45° N, limbs 005°/75° S and 230°/55°/75° N, hairline fractures along fold axes that may be marked by mm-wide quartz veinlets, drag folds. Thickness: 0 to 35 m
FELSIC SEDIMENTARY ROCKS, magnetic	Light grey, creamy to pinkish, very fine grained;poor to moderate foliation; very tough, siliceous; magnetic due to very fine grained disseminated magnetite; rare vugs contain 2 mm dark blue-grey magnetite octahedra, quartz crystals, and fine grained chlorite. Thickness: 8 m
INTERMEDIATE (TO MAFIC) SEDIMENTARY ROCKS	Light to medium grey, very fine grained; well bedded and foliated; siliceous, biotitic, plagioclase-bearing; more mafic beds may contain hornblende or chloritized hornblende imparting mottled greenish coloration; minor quartz veinlets commonly subparallel to bedding with chlorite envelopes or included patches. Thickness: 0.91 m
MAFIC SEDIMENTARY ROCKS	Dark green, very fine grained; moderately foliated, biotitic, hornblendic (may be partially to wholly altered to chlorite), may be silicified. Thickness: 20 to 282 m
GREYWACKE	Dark greyish-green, very fine- to fine-grained; moderate foliation; 25% felsic clasts, average 1 x 5 mm; 35% mafic clasts in streaks, average 1 to 2 cm long; 5 to 10%, 1 mm plagioclase; 40% dark greenish-brown very fine grained matrix. Thickness: 76 m
GRANITE	Salmon pink, fine- to medium-grained; well defined quartz foliation (265°/60° N); 20 to 25% quartz in clear foliated blebs, up to 1 x 10 mm, average 7 mm long; 70% subhedral feldspars, average 1 mm, K-feldspar and plagioclase. Thickness: 30 to 215 m on north shore of lake

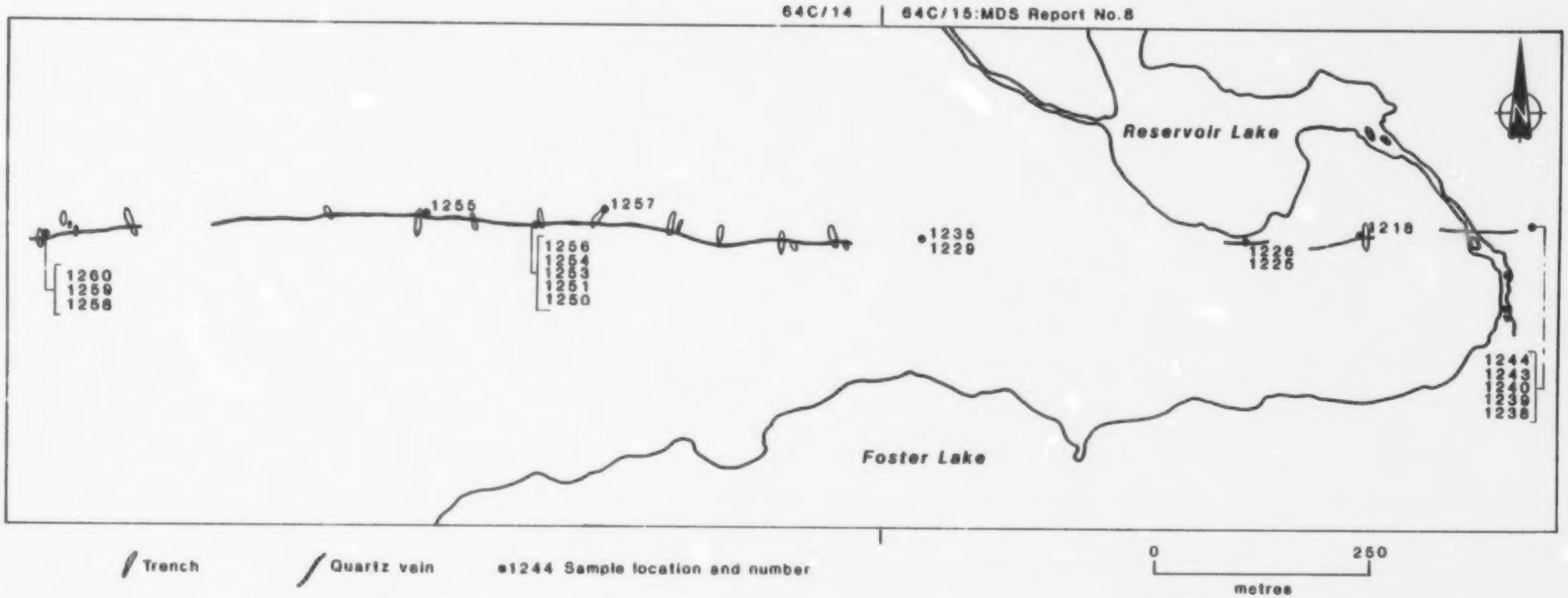

64C/14
64C/15:MDS Report No.8
N
Reservoir Lake
Foster Lake
1255
1257
1256
1254
1253
1251
1250
1260
1259
1258
1235
1229
1226
1225
1218
1244
1243
1240
1239
1238
Trench
Quartz vein
•1244 Sample location and number
0
250
metres

Figure 21-2: Sample locations for data presented in Table 21-2, Johnson Vein area and Foster Lake.

Table 21-2: **Au values in ppb for the Johnson Vein area, Foster Lake**

Sample No.	Au (ppb)
1210	0
1212	0
1216	0
1218	30
1225	587
1226	2
1229	3
1235	16
1238	13
1239	4
1240	53
1243	1
1244	1
1250	1
1251	2
1253	51
1254	4
1255	755
1256	100
1257	84
1258	12
1259	400
1260	2

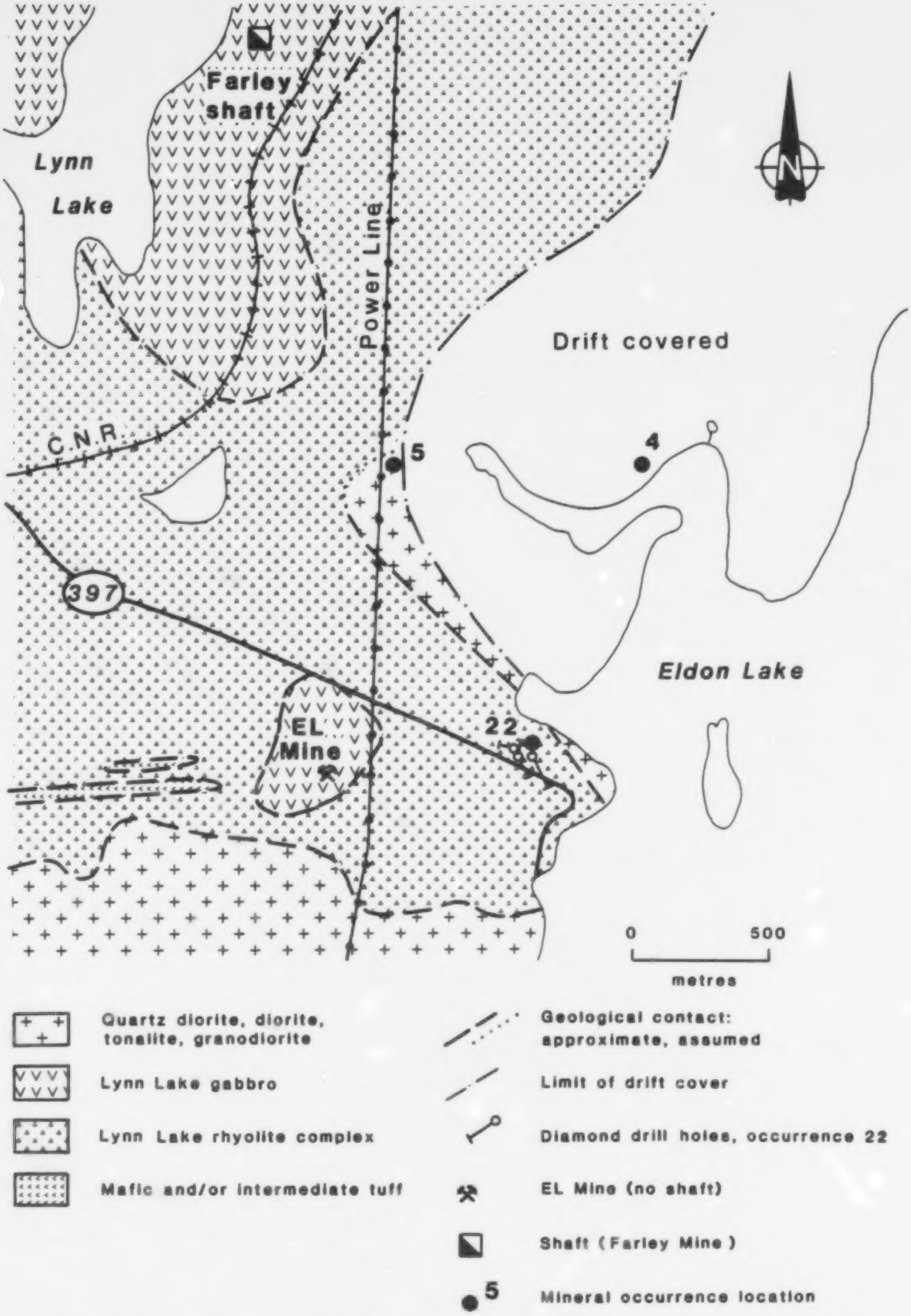

Farley shaft
Lynn Lake
Power Line
Drift covered
C.N.R.
5
4
397
Eldon Lake
EL Mine
22
N
0
500
metres
Quartz diorite, diorite, tonalite, granodiorite
Lynn Lake gabbro
Lynn Lake rhyolite complex
Mafic and/or intermediate tuff
Geological contact: approximate, assumed
Limit of drift cover
Diamond drill holes, occurrence 22
EL Mine (no shaft)
Shaft (Farley Mine)
5
Mineral occurrence location

Figure 22-1: Geology of the northwest part of Eldon Lake (modified from Emslie and Moore, 1961; Gilbert et al., 1980).

LOCATION: 22

NAME:
UTM: 6299035N 376800E
ACCESS: Via Hwy. 397.

AREA: West shore of Eldon Lake.
AIRPHOTO: A24142-174

EXPLORATION SUMMARY:

The ground was staked in 1946 as part of the FL group of claims and transferred to Gods Lake Gold Mines Ltd. Magnetometer and geological surveys, and claim surveying were carried out in 1947. The occurrence was located by magnetometer survey and was tested with three DDH in 1947 (Fig. 22-1; A.F. 91023, 91024). The claims were cancelled in 1956. The ground was restaked by W.B. Dunlop and under option agreement a geophysical survey was conducted by H.B.E.D. in 1976. No further work was done and the claim block was cancelled in 1982. Sherritt Gordon Mines Ltd. staked the ground in 1982, conducted a geophysical survey in 1984 and cancelled the claim block in July 1988. LynnGold Resources Inc. is the present holder of the property.

GEOLOGICAL SETTING:

The area is underlain by interlayered Wasekwan Group metasedimentary rocks, metavolcanic rocks and intrusive rocks (Fig. 22-1; Emslie and Moore, 1961; Gilbert, *et al.*, 1980). The metasedimentary rocks include greywacke, conglomerate and garnet-mica schist and the volcanic rocks are massive basalt. The supracrustal rocks were intruded by a quartz diorite, diorite pluton and the Lynn Lake gabbro.

MINERALIZATION:

Inspection of diamond drill records (A.F. 91023) suggests the mineralization is disseminated sulphide in altered to unaltered greywacke. The sulphide mineralogy is pyrrhotite, pyrite and chalcopyrite, but the relative abundance of each is not specified. There is no indication as to the nature of the alteration. Quartz veins and quartz diorite dykes are common in drill core, but there does not appear to be a consistent relationship between sulphide-bearing greywacke and the quartz veins or the granitic dykes.

GEOCHEMICAL DATA:

The following data are taken from drill records contained in A.F. 91023.

DDH	Depth In DDH (m)	Ni%	Cu%
9	10.5 - 11.1	nil	nil
	14.9 - 25.4	tr	nil
	27.6 - 28.2	0.10	0.13
10	4.1 - 6.7	0.13	0.13
	8.0 - 8.4	0.10	0.10

CLASSIFICATION:

Disseminated sulphide mineralization not classified.

REFERENCES:

Assessment Files 91023, 91024
Manitoba Energy and Mines, Minerals Division.

Emslie, R.F. and Moore, J.M. Jr.
1961: Geological studies of the area between Lynn Lake and Fraser Lake; Manitoba Department of Mines and Natural Resources, Mines Branch, Publication 59-4. p. 76 p.

Gilbert, H.P., Syme, E.C. and Zwanzig, H.V.
1980: Geology of the metavolcanic and volcaniclastic metasedimentary rocks in the Lynn Lake area; Manitoba Energy and Mines, Mineral Resources Division, Geological Paper GP80-1, 118 p.

LOCATION: 23

NAME:

UTM: 6304063N 377668E
ACCESS: Via Hwy. 391.

EXPLORATION SUMMARY:
No information available.

GEOLOGICAL SETTING:

The area is underlain by Wasekwan Group metasedimentary rocks that comprise an interbedded sequence of biotite-bearing greywacke, siltstone and mudstone, and minor intercalated amphibolite, felsic tuff and lapilli-tuff (Gilbert *et al.*, 1980).

MINERALIZATION:

One of the siltstone layers in the metasedimentary sequence contains 5 to 10% very fine grained disseminated pyrrhotite. The siltstone unit is approximately 1 m thick and is exposed for about 18 m of strike length in the ditch at the side of Hwy. 391.

AREA: South side of Hwy. 391, 2.5 km from north limit of Lynn Lake townsite.
AIRPHOTO: A24142-172

GEOCHEMICAL DATA:

A grab sample of mineralized siltstone returned.

Cu	Pb	Zn	Ag	Au
411	9	897	1	1

Au in ppb, all others in ppm.

CLASSIFICATION:

Disseminated sulphide mineralization not classified; possibly a clastic sediment type mineralization.

REFERENCES:

Gilbert, H.P., Syme, E.C. and Zwanzig, H.V.
1980: Geology of the metavolcanic and volcaniclastic metasedimentary rocks in the Lynn Lake area; Manitoba Energy and Mines, Mineral Resources Division, Geological Paper GP80-1, 118 p.

LOCATION: 24

NAME:
UTM: 6299048N 374852E
ACCESS: Via gravel road from Hwy. 397 to Flag Lake.

AREA: 200 m northeast of north tip of Flag Lake.
AIRPHOTO: A24142-174

EXPLORATION SUMMARY:

This area has been included as part of staked claims and claim blocks since the early 1940's. There has not been any development work at the site of the mineral occurrence.

GEOLOGICAL SETTING:

The mineralized locality and the area that surrounds it (Fig. 24-1) are underlain by bedded metasedimentary rocks with intermediate composition. The rocks form an east-northeast striking metasedimentary lens (Gilbert *et al.*, 1980) that includes greywacke, siltstone, mudstone and thin amphibolite layers and occurs near the base of the Lynn Lake rhyolitic complex (Baldwin, 1983).

MINERALIZATION:

Anastomosing sulphide-bearing (pyrite, pyrrhotite) stringers and veinlets crosscut the greywacke (Fig. 24-2). The stringers and veinlets consist of disseminated fine grained pyrite and pyrrhotite in a fine grained amphibole and quartz matrix; they have diffuse boundaries with greywacke. Garnet porphyroblasts are distributed unevenly throughout the rocks and preferentially occur in the stringers and veinlets. The anastomosing nature of the mineralization resulted in the rock having a "knotted" appearance exhibited by rounded greywacke fragments in mineralized material (Ferreira and Baldwin, 1984).

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

The anastomosing nature of the mineralization and the "knotted" appearance of the rock probably resulted from tectonic flattening of a fracture pattern that provided the channelways for mineralizing fluids. There is no massive sulphide deposit to which this mineralization can be associated, thus it is classified as a stockwork vein type mineralization. However, the possibility of the mineralization being an alteration zone to a stratabound massive sulphide type deposit cannot be precluded.

REFERENCES:

Baldwin, D.A.

1983: Stratigraphic studies of felsic volcanic rocks associated with mineral occurrences in the Lynn Lake area, Manitoba; in Manitoba Energy and Mines, Mineral Resources Division, Report of Field Activities 1983, p. 88-93.

Ferreira, K and Baldwin, D.A.

1984: Mineral deposit documentation in the Lynn Lake area; in Manitoba Energy and Mines, Mineral Resources Division, Report of Field Activities 1984, p. 12-16.

Gilbert, H.P., Syme, E.C. and Zwanzig, H.V.

1980: Geology of the metavolcanic and volcaniclastic metasedimentary rocks in the Lynn Lake area; Manitoba Energy and Mines, Mineral Resources Division, Geological Paper GP80-1, 118 p.

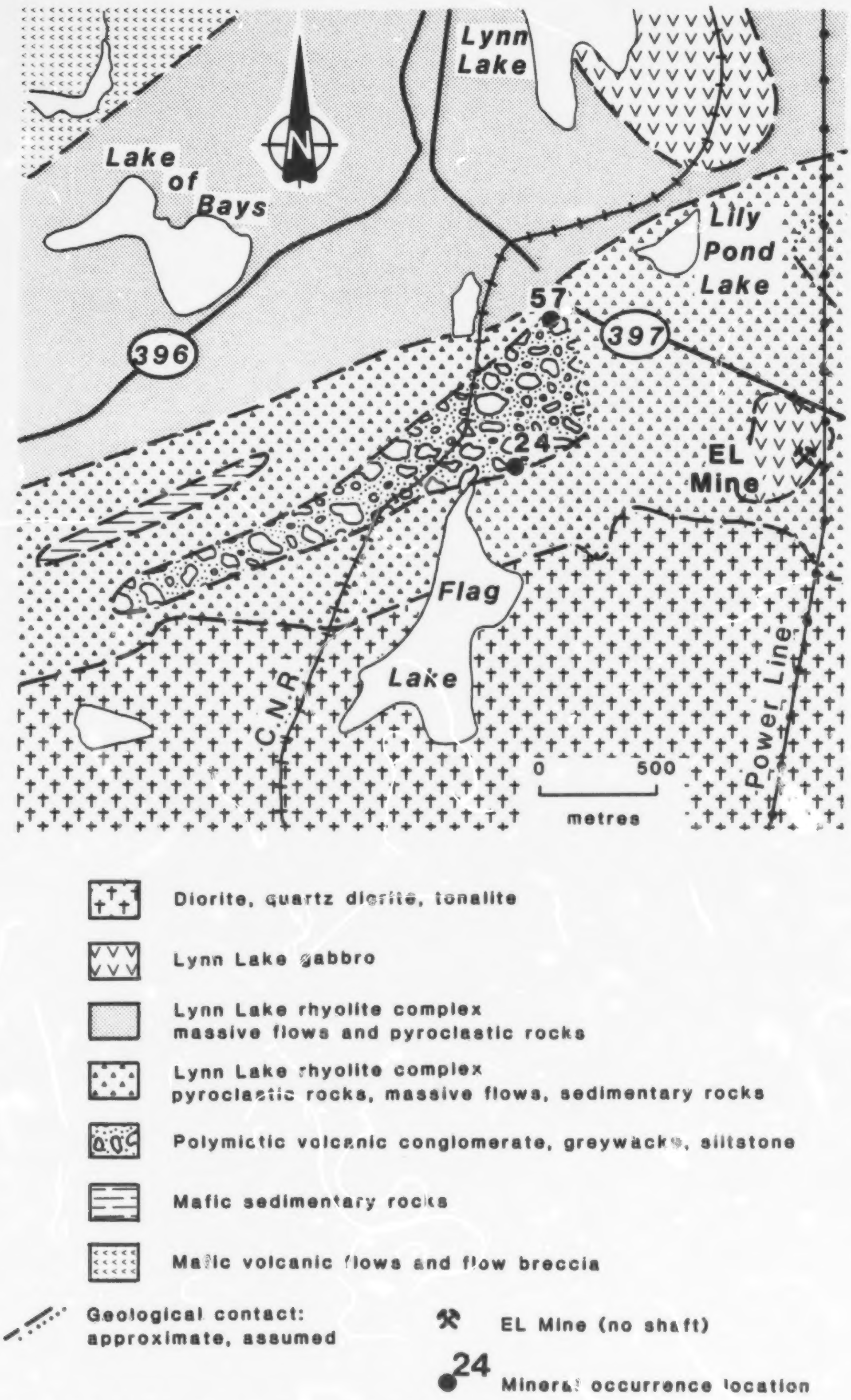

Lynn Lake
Lake of Bays
N
Lily Pond Lake
57
396
397
24
EL Mine
Flag Lake
C.N.R.
Power Line
0
500
metres
Diorite, quartz diorite, tonalite
Lynn Lake gabbro
Lynn Lake rhyolite complex massive flows and pyroclastic rocks
Lynn Lake rhyolite complex pyroclastic rocks, massive flows, sedimentary rocks
Polymictic volcanic conglomerate, greywacke, siltstone
Mafic sedimentary rocks
Mafic volcanic flows and flow breccia
Geological contact: approximate, assumed
EL Mine (no shaft)
24
Mineral occurrence location

Figure 24-1: Geology of the area around Flag Lake (after Gilbert et al., 1980).

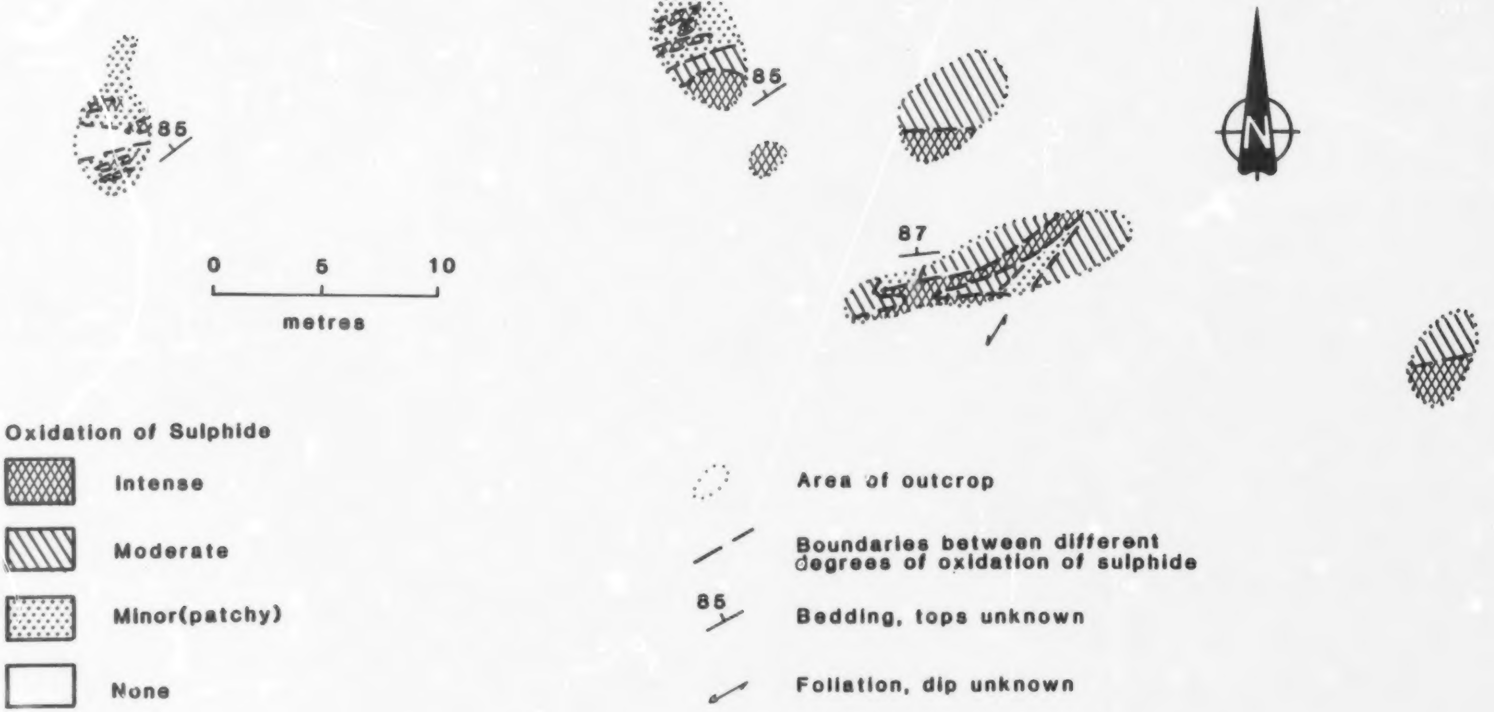

85
85
87
N
0
5
10
metres
Oxidation of Sulphide
Intense
Moderate
Minor(patchy)
None
Area of outcrop
Boundaries between different degrees of oxidation of sulphide
85
Bedding, tops unknown
Foliation, dip unknown

Figure 24-2: Detailed geological sketch map of mineral locality 24.

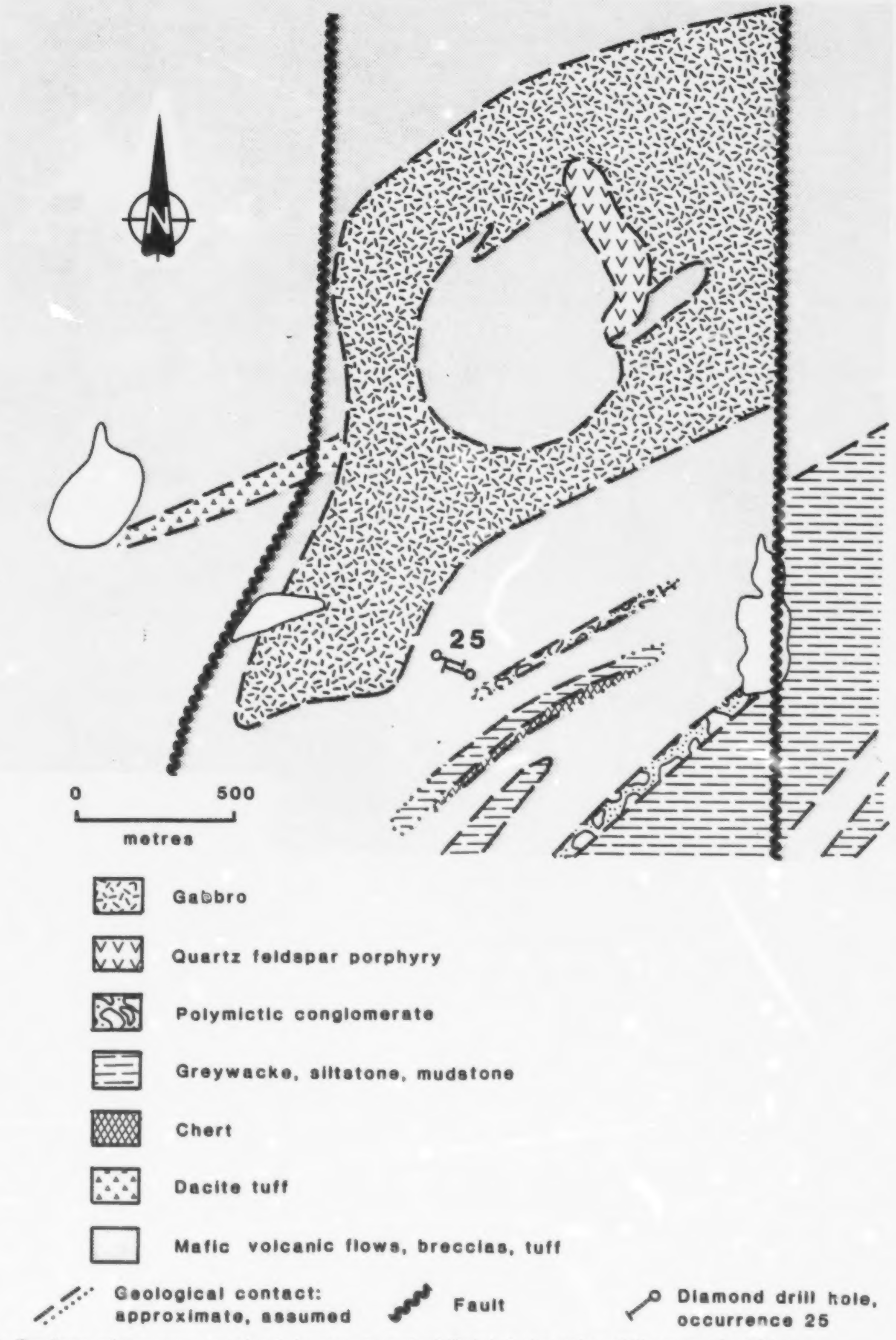

N
25
0
500
metres
Gabbro
Quartz feldspar porphyry
Polymictic conglomerate
Greywacke, siltstone, mudstone
Chert
Dacite tuff
Mafic volcanic flows, breccias, tuff
Geological contact: approximate, assumed
Fault
Diamond drill hole, occurrence 25

Figure 25-1: Geology of the area south of the south end of Ralph Lake (after Gilbert et al., 1980).

LOCATION: 25

NAME:

UTM: 6300030N 368849E

ACCESS: Via Hwy. 396 from Lynn Lake to boat launch at southwest end of Frances Lake; via boat to north end of northwest bay in Frances Lake and traverse.

AREA: 2.7 km south of south end of Ralph Lake.

AIRPHOTO: A24299-46

EXPLORATION SUMMARY:

Staking of the ground dates back to 1946 and since then the ground has been restaked several times. During March and April of 1947, Falconbridge Nickel Mines Ltd. carried out a magnetometer survey and later that year geological mapping and diamond drilling was done (Bateman, 1945). In 1953, B.R. Richards conducted a magnetometer survey, and E.W. Bozinet carried out an EM survey in 1957 (A.F. 91025, 91026). As a result of this work two diamond drill holes were drilled on behalf of Empire Enterprises (A.F. 91025, 91026). There has not been any development work recorded for assessment purposes since 1957. The property is presently held by Granges Exploration Ltd.

GEOLOGICAL SETTING:

The area is underlain by Wasekwan Group mafic metavolcanic rocks that include massive flows, flow breccia and tuff. Thin lenses and layers of volcaniclastic metasedimentary rocks comprising greywacke, siltstone and mudstone are interlayered with the mafic volcanic rocks (Fig. 25-1; Gilbert *et al.*, 1980).

MINERALIZATION:

Three intersections of well mineralized fine grained siliceous material are reported in the drill logs (A.F. 91025). The intersections range in thickness from 15.5 cm to 3.35 m. The sulphide mineralization consists mainly of pyrite with minor chalcopyrite. Sulphide abundance ranges from 20% to solid sulphide. However, the solid sulphide intersection could be a vein of sulphide mobilizate.

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated sulphide mineralization not classified.

REFERENCES:

Assessment Files 91025, 91026

Manitoba Energy and Mines, Minerals Division.

Bateman, J.D.

1945: McVeigh Lake area, Manitoba; Canada Department of Mines and Resources, Mines and Geology Branch, Geological Survey Paper 45-14, 34 p.

Gilbert, H.P., Syme, E.C. and Zwanzig, H.V.

1980: Geology of the metavolcanic and volcaniclastic metasedimentary rocks in the Lynn Lake area; Manitoba Energy and Mines, Mineral Resources Division, Geological Paper GP80-1, 118 p.

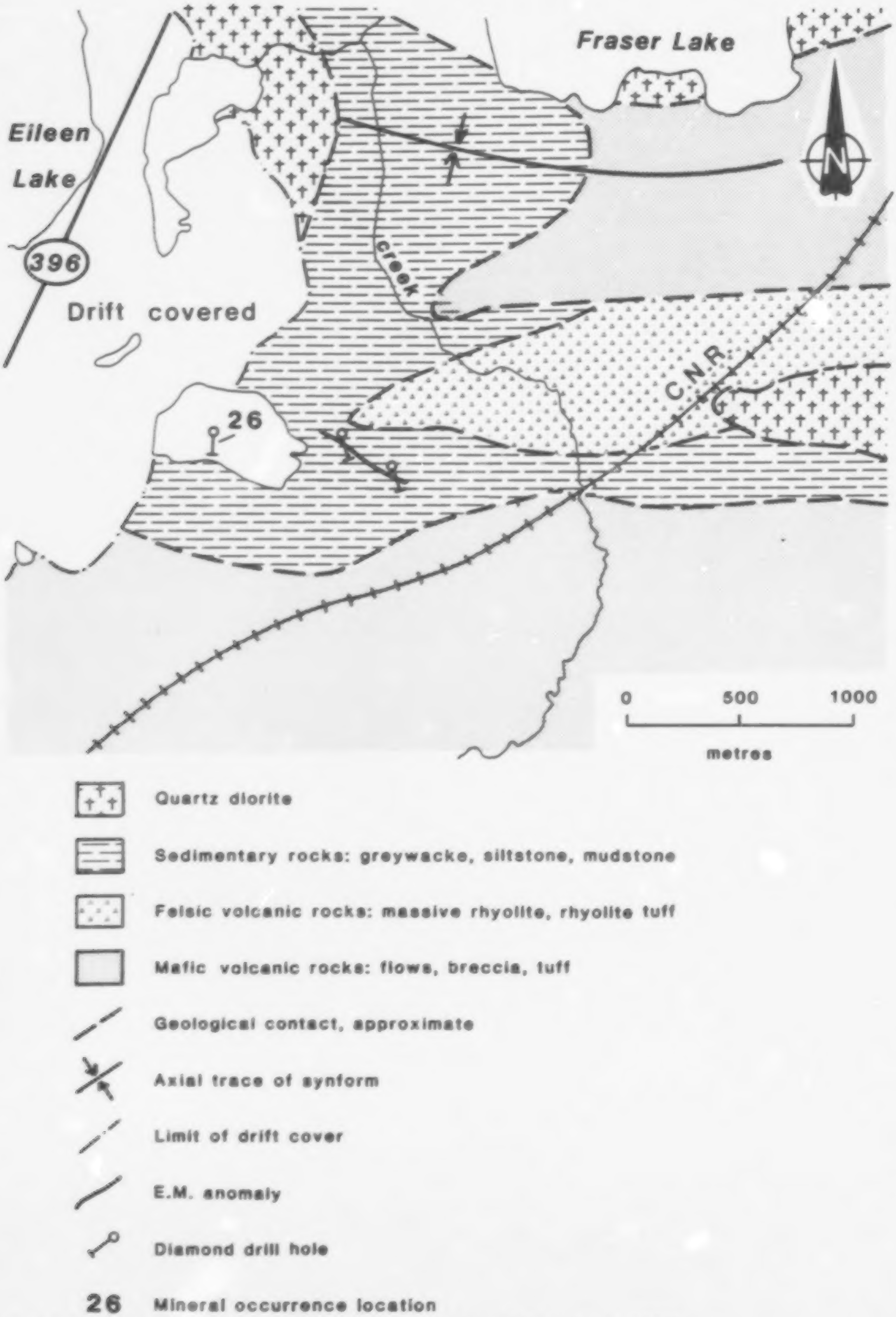

Fraser Lake
Eileen Lake
396
Drift covered
creek
C.N.R.
26
N
0
500
1000
metres
Quartz diorite
Sedimentary rocks: greywacke, siltstone, mudstone
Felsic volcanic rocks: massive rhyolite, rhyolite tuff
Mafic volcanic rocks: flows, breccia, tuff
Geological contact, approximate
Axial trace of synform
Limit of drift cover
E.M. anomaly
Diamond drill hole
26 Mineral occurrence location

Figure 26-1: Geology of the area southwest of Fraser Lake (after Gilbert et al., 1980).

LOCATION: 26

NAME:

UTM: 6293072N 369184E

ACCESS: Via Hwy. 396 and a 1.4 km traverse through the bush.

AREA: Small lake 1 km southeast of Eileen Lake.

AIRPHOTO: A24299-48

EXPLORATION SUMMARY:

An EM survey and two diamond drill holes by Sherritt Gordon Mines Ltd. One diamond drill hole by Granges Exploration Ltd. (Fig. 26-1).

GEOLOGICAL SETTING:

The area (Fig. 26-1) is underlain by a bedded sequence of Wasekwan Group metasedimentary rocks comprising polymictic conglomerate, greywacke and siltstone. To the north and northeast of the occurrence there is a felsic volcanic body composed of flows and pyroclastic rocks and to the west, the supracrustal rocks have been intruded by a granitic plutonic body (Gilbert *et al.*, 1980).

MINERALIZATION:

The mineralization in the eastern part of the occurrence consists of sulphide (py, po) stringers in quartz-biotite-hornblende gneiss that is probably altered greywacke. Graphite is a common constituent in some of the gneissic layers (pers. comm. Sherritt Gordon Mines Ltd.) In the west, the mineralization consists of disseminated and vein sulphide in granitic rock (A.F. 92699).

GEOCHEMICAL DATA:

In the eastern part of the occurrence Cu and Zn values range from nil to 0.03% and nil to 0.15%, respectively. In the west Cu values range from 0.03-0.05%, Zn from 0.08-0.21% and Ni from 0.01-0.02% (A.F. 92699).

CLASSIFICATION:

The occurrence is classified as stockwork vein type sulphide mineralization. However, it could be an alteration zone associated with an undiscovered stratabound massive sulphide type deposit.

REFERENCES:

Assessment File 92699
Manitoba Energy and Mines, Minerals Division.

Gilbert, H.P., Syme, E.C. and Zwanzig, H.V.
1980: Geology of the metavolcanic and volcaniclastic metasedimentary rocks in the Lynn Lake area; Manitoba Energy and Mines, Mineral Resources Division, Geological Paper GP80-1, 118 p.

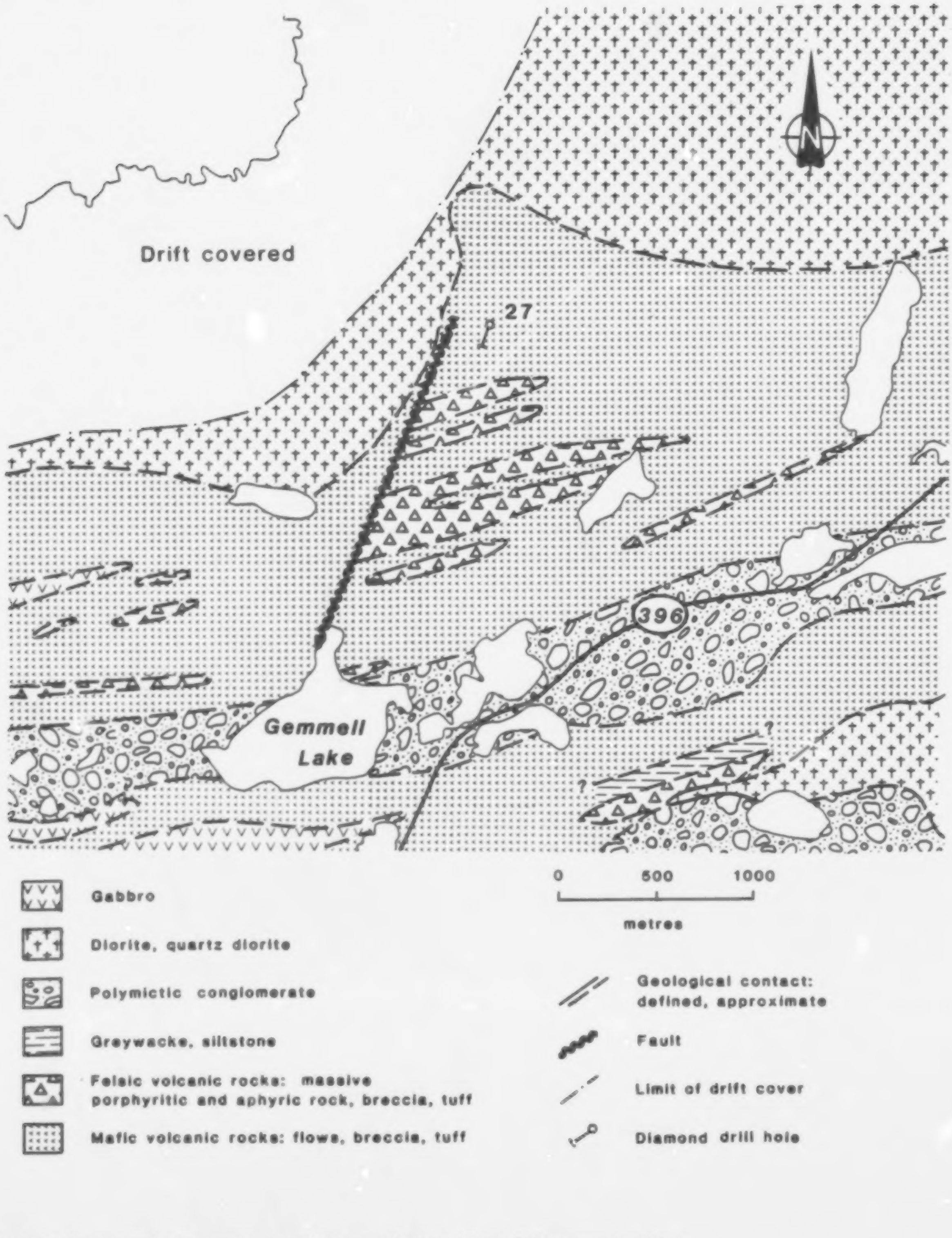

Drift covered
27
N
396
Gemmell Lake
0
500
1000
metres
Gabbro
Diorite, quartz diorite
Polymictic conglomerate
Greywacke, siltstone
Felsic volcanic rocks: massive porphyritic and aphyric rock, breccia, tuff
Mafic volcanic rocks: flows, breccia, tuff
Geological contact: defined, approximate
Fault
Limit of drift cover
Diamond drill hole

Figure 27-1: Geology of the area north of Gemmell Lake (after Gilbert et al., 1980).

LOCATION: 27

NAME:

UTM: 6291617N 363344E

ACCESS: Via Hwy. 396 to Gemmell Lake and a 2.1 km traverse.

AREA: 2.3 km west southwest from the south end of Motriuk Lake.

AIRPHOTO: A24299-17

EXPLORATION SUMMARY:

In 1947 Noranda Mines Ltd. conducted self potential, resistivity and magnetometer surveys in addition to geological mapping (A.F. 91467). One diamond drill hole was drilled in 1983 by Granges Exploration Ltd. (A.F. 92697). The ground is presently held by LynnGold Resources Inc.

GEOLOGICAL SETTING:

There are few outcrops in the area of the occurrence. The rocks around the occurrence consist of Wasekwan Group metavolcanic rocks comprising mafic tuff, banded amphibolite, lenses of dacite tuff, dacite breccia and massive porphyritic rhyolite (Fig. 27-1; Gilbert *et al.*, 1980).

MINERALIZATION:

The drill hole indicated occurrence consists of a 10 m intersection of sulphide mineralization in amphibolite and a quartz-biotite schist that is probably altered mafic tuff (A.F. 92697). The mineralization consists of two cherty layers, 0.5 and 1.6 m thick, that contain 20% pyrite and pyrrhotite with minor chalcopyrite. The cherty layers are enclosed by amphibolite and quartz-biotite schist that contain disseminated and stringer pyrite and pyrrhotite, and minor galena and sphalerite.

GEOCHEMICAL DATA:

The following data are from Granges Exploration Ltd. diamond drill logs (A.F. 92697).

Nature of Mineralization	Assay Width (m)	Au g/t	Ag g/t	Cu%	Zn%
Pyrite stringers	0.5	0.05	0.5	0.02	0.01
Disseminated sulphide	1.0	0.05	0.5	0.01	0.01
20% sulphide in chert	1.6	0.15	1.0	0.04	0.02
Disseminated sulphide +/- sphalerite and galena stringers	0.5	0.20	4.0	0.02	0.17
Disseminated sulphide	1.2	0.10	1.0	0.01	0.02
Disseminated sulphide	2.5	0.10	0.5	0.01	0.01
Stringer pyrite, pyrrhotite with minor galena	0.7	0.05	0.5	0.01	0.01
Disseminated sulphide	1.6	0.05	0.5	0.01	0.01
20% sulphide in chert	0.5	0.05	1.0	0.03	0.01

CLASSIFICATION:

Disseminated sulphide is the most abundant type of mineralization at the occurrence. The paucity of stringer mineralization could be due to the stringer sulphide being a metamorphic mobilizate. Thus the occurrence is designated disseminated mineralization not classified. However, this does not preclude the possibility of the mineralization being an alteration zone to a volcanic rock-associated stratabound massive type deposit.

REFERENCES:

Assessment Files 91467, 92679
Manitoba Energy and Mines, Minerals Division.

Gilbert, H.P., Syme, E.C. and Zwanzig, H.V.
1980: Geology of the metavolcanic and volcaniclastic metasedimentary rocks in the Lynn Lake area; Manitoba Energy and Mines, Mineral Resources Division, Geological Paper GP80-1, 118 p.

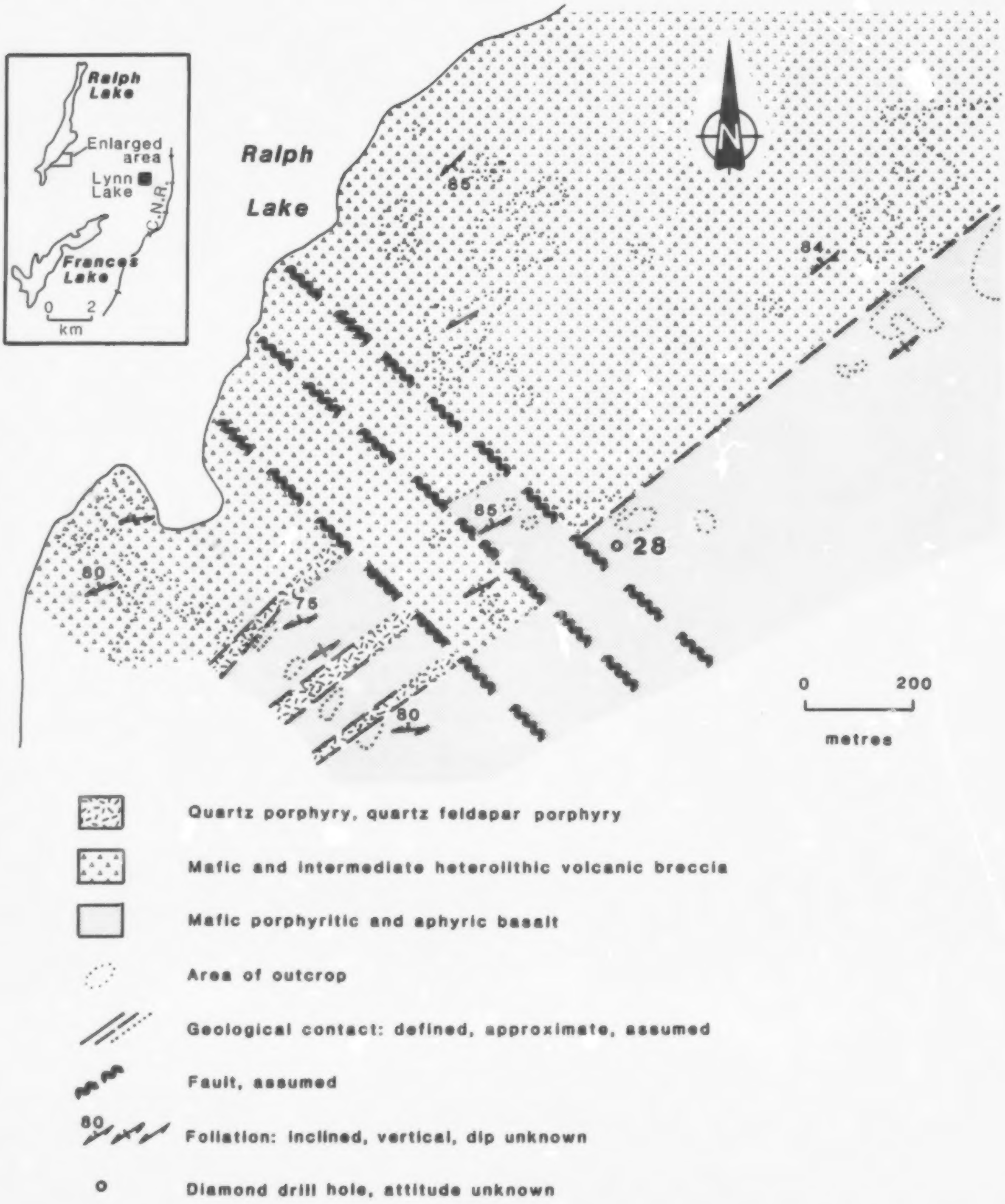

Ralph Lake
Enlarged area
Lynn Lake
C.N.R.
Frances Lake
0 2
km
Ralph Lake
N
85
84
85
o 28
80
75
80
0 200
metres
Quartz porphyry, quartz feldspar porphyry
Mafic and intermediate heterolithic volcanic breccia
Mafic porphyritic and aphyric basalt
Area of outcrop
Geological contact: defined, approximate, assumed
Fault, assumed
80
Foliation: inclined, vertical, dip unknown
o
Diamond drill hole, attitude unknown

Figure 28-1: Geology of the area around mineral locality 28, east shore of Ralph Lake (after data supplied by Sherritt Gordon Mines Ltd., 1984).

LOCATION: 28

NAME:

AREA: Ralph Lake.

UTM: 6303096N 371317E

AIRPHOTO: A24299-44

ACCESS: Via Hwy. 394 north from Lynn Lake to boat landing at north end of Ralph Lake; boat to small bay on east shore of Ralph Lake and traverse.

EXPLORATION SUMMARY:

International Mining Corporation (Canada) Ltd. conducted a magnetic survey and geological mapping in 1946 (Milligan, 1960). There was no further recorded exploration work on the property for the next 30 years. In 1976 Sherritt Gordon Mines Ltd. drilled one diamond drill hole and in 1983 conducted geological mapping (A.F. 92597).

GEOLOGICAL SETTING:

The area is underlain by mafic volcanic rocks that were intruded by quartz porphyry and quartz-feldspar porphyry dykes (Fig. 28-1; Gilbert *et al.*, 1980; Sherritt Gordon Mines Ltd., pers. comm. 1984). The mafic volcanic rocks are predominantly heterolithic breccia with minor massive mafic porphyritic units (A.F. 92597). The breccias and some of the felsic porphyry units are interpreted to be redeposited pyroclastic material (Baldwin, 1984). The massive mafic porphyritic units could be either intrusive rocks or lava flows.

MINERALIZATION:

The drill log for the diamond drill hole is not available, thus the nature of the mineralization is unknown.

GEOCHEMICAL DATA:

A geological report submitted for assessment records that the drill hole intersected 40 cm of mineralization that contained 0.37% Cu, 2 g/tonne Au and 8 g/tonne Ag (A.F. 92597).

CLASSIFICATION:

The nature of the mineralization is not known, but most of the mineralization in the Ralph Lake, Sheila Lake and Margaret Lake area is disseminated sulphide. Massive sulphides were not mentioned in the Sherritt Gordon Mines Ltd. geologist report. The mineralization at the occurrence is considered to be disseminated sulphide not classified.

REFERENCES:

Assessment File 92597
Manitoba Energy and Mines, Minerals Division.

Gilbert, H.P., Syme, E.C. and Zwanzig, H.V.
1980: Geology of the metavolcanic and volcaniclastic metasedimentary rocks in the Lynn Lake area; Manitoba Energy and Mines, Mineral Resources Division, Geological Paper GP80-1, 118 p.

Milligan, G.C.
1960: Geology of the Lynn Lake district, Manitoba; Manitoba Department of Mines and Natural Resources, Mines Branch, Publication 57-1, 317 p.

LOCATION: 29

NAME:

UTM: 6297786N 375893E

ACCESS: Via boat from Manitoba Energy and Mines expediting base at Eldon Lake and an 800 m traverse.

EXPLORATION SUMMARY:

The ground was originally staked in 1945 as part of the ELB Group. Sherritt Gordon Mines Ltd. conducted several geophysical surveys, presumably magnetic and EM surveys, on the claim group (Milligan, 1960). There does not appear to have been any follow-up work in the area of the occurrence until 1976 when W.B. Dunlop conducted a magnetic survey (A.F. 92328). Subsequently, the ground was optioned to H.B.E.D., and one hole was drilled in 1980 (A.F. 92329).

GEOLOGICAL SETTING:

The area is underlain by a post-Wasekwan Group, pre-Sickle Group multiphase intrusive granitic body. The various intrusive phases include diorite, quartz-diorite, hornblende-biotite tonalite, granodiorite and granite (Gilbert *et al.* 1980).

MINERALIZATION:

The mineralization consists of a 1.8 m wide drill hole intersection of massive, epidotized granodiorite that contains 5% disseminated magnetite, minor narrow pyrite stringers and minor disseminated pyrite (A.F. 92329).

AREA: 800 m west of Eldon Lake.

AIRPHOTO: A24142-175

GEOCHEMICAL DATA:

The reported assay for mineralized intersections yielded trace values for Au, Ag, Cu, and Zn.

CLASSIFICATION:

Disseminated mineralization not classified.

REFERENCES:

Assessment Files 92328, 92329
Manitoba Energy and Mines, Minerals Division.

Gilbert, H.P., Syme, E.C. and Zwanzig, H.V.
1980: Geology of the metavolcanic and volcaniclastic metasedimentary rocks in the Lynn Lake area; Manitoba Energy and Mines, Mineral Resources Division, Geological Paper GP80-1, 118 p.

Milligan, G.C.
1960: Geology of the Lynn Lake district, Manitoba; Manitoba Department of Mines and Natural Resources, Mines Branch, Publication 57-1, 317 p.

LOCATION: 30

NAME:

UTM: 6296193N 367638E

ACCESS: West from Lynn Lake on Hwy. 396 to boat landing at Motriuk Lake. Boat to east shore of Motriuk Lake and 1 km traverse.

EXPLORATION SUMMARY:

Sherritt Gordon Mines Ltd. conducted ground geophysical surveys in 1978 and drilled three diamond drill holes in 1979 (Fig. 30-1).

GEOLOGICAL SETTING:

The area is underlain by a composite intrusive body comprising diorite, quartz diorite, hornblende-biotite tonalite and granodiorite (Gilbert *et al.*, 1980) with large inclusions of Wasekwan Group metavolcanic and metasedimentary rocks (Emslie and Moore, 1961). The supracrustal rocks include andesite, andesite tuff and dacite tuff (A.F. 92395).

MINERALIZATION:

Mineralization consists of minor to moderate (3 to 20%) disseminated pyrrhotite, pyrite and minor chalcopyrite, and sulphide stringers over a drill intersection of 16 m in andesite and dacite tuff. Within the mineralized zone there are graphite layers up to 1 m thick. There is minor chlorite associated with the mineralization, but the mode of the occurrence of the chlorite is not specified in the drill logs.

GEOCHEMICAL DATA:

Assays from the mineralized zone for Cu and Zn range from nil to 0.22% and nil to 0.34%, respectively. Assays for Au and Ag are not reported for all samples. Those that are reported range from 1.2 to 10.6 g/tonne Ag and trace Au.

AREA: East shore of Motriuk Lake.

AIRPHOTO: A24299-17

CLASSIFICATION:

Disseminated sulphide not classified. The presence of disseminated and stringer sulphide, and associated chlorite could represent an alteration zone associated with a stratabound massive sulphide type deposit. On the other hand, the presence of graphite layers could indicate a chemical sediment type deposit, with the sulphide stringers being a mobilizate due to metamorphism.

REFERENCES:

Assessment File 92395, 92382

Minerals Division, Manitoba Energy and Mines.

Emslie, R.F. and Moore, J.M. Jr.

1961: Geological studies of the area between Lynn Lake and Fraser Lake; Manitoba, Department of Mines and Natural Resources, Mines Branch, Publication 59-4, 76 p.

Gilbert, H.P., Syme, E.C. and Zwanzig, H.V.

1980: Geology of the metavolcanic and volcaniclastic metasedimentary rocks in the Lynn Lake area; Manitoba Energy and Mines, Mineral Resources Division, Geological Paper GP80-1, 118 p.

Questor Surveys Ltd.

1976: Lynn Lake area electromagnetic survey, Phase I.

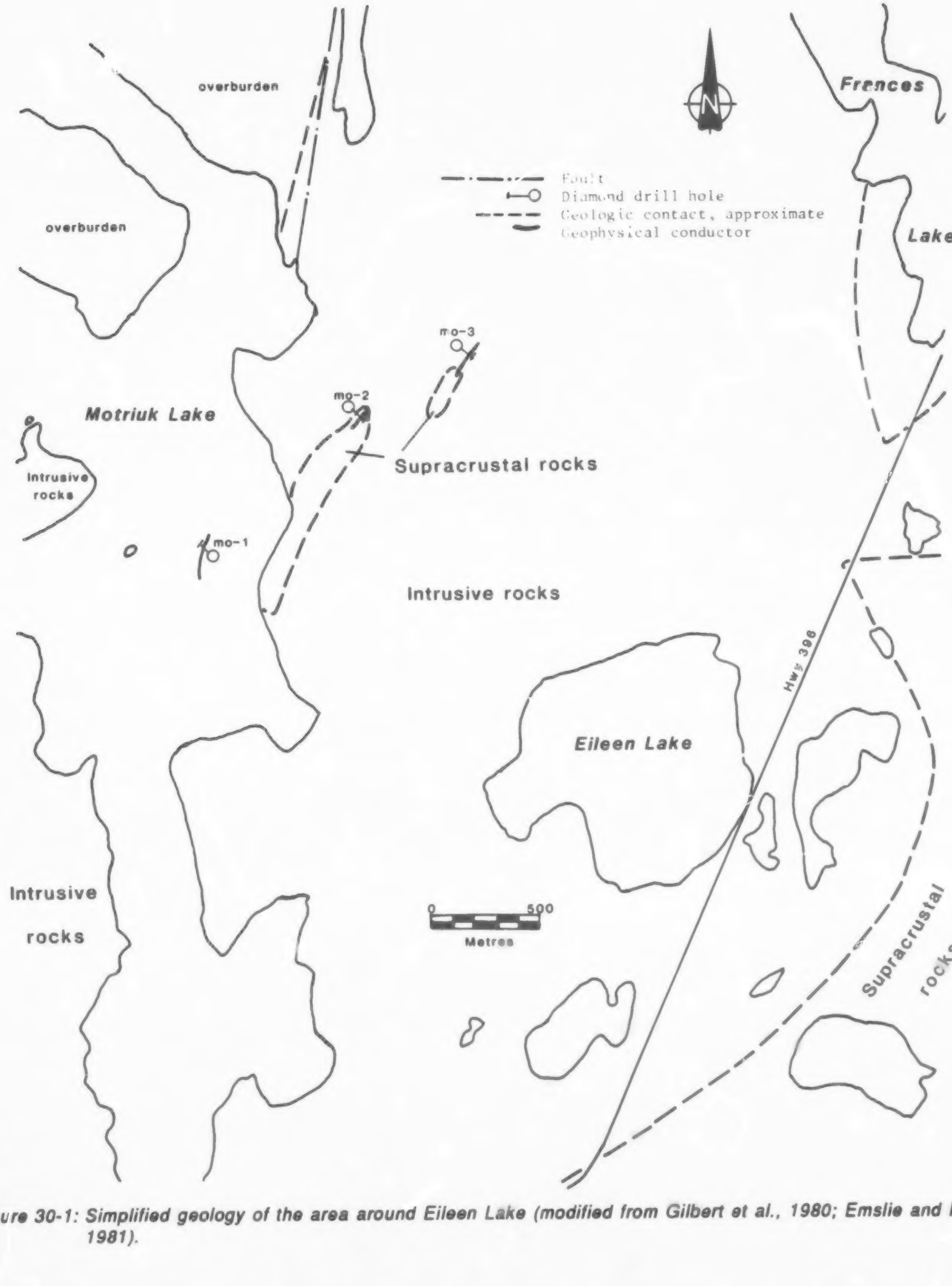

overburden
overburden
Frances
Lake
Fault
Diamond drill hole
Geologic contact, approximate
Geophysical conductor
mo-3
mo-2
Motriuk Lake
Supracrustal rocks
Intrusive rocks
mo-1
Intrusive rocks
Hwy 396
Eileen Lake
Intrusive rocks
0
500
Metres
Supracrustal rocks

Figure 30-1: Simplified geology of the area around Eileen Lake (modified from Gilbert et al., 1980; Emslie and Moore, 1981).

LOCATION: 31

NAME:

UTM: 6308281N 356321E

ACCESS: Hwy. 394 from Lynn Lake to Zed Lake Campground, boat from campground to southwest part of Zed Lake and a 2 km traverse.

EXPLORATION SUMMARY:

Sherritt Gordon Mines Ltd. conducted ground geophysical surveys in 1973. During March 1974, five holes were drilled to test the geophysical target (A.F. 92222).

GEOLOGICAL SETTING:

The area where the mineral occurrence is located is covered with overburden (Gilbert *et al.*, 1980). From the drill logs it appears that the geology of the occurrence consists of a layered sequence of light to dark grey, fine- to medium-grained, quartz-biotite-feldspar metasedimentary rocks.

MINERALIZATION:

The mineralization comprises minor to moderate disseminated pyrite, quartz veins with minor pyrite as sulphide blebs and pyrite stringers that range in width from 0.1-50 cm. The three styles of mineralization are associated with one another and form a mineralized zone that ranges in thickness from 5 to 40 m. Within the mineralized zone, layers of metasedimentary rock containing 1 to 20% disseminated pyrite, some of which contain graphite in addition to pyrite, are interlayered with non-mineralized metasedimentary rock. The mineralized layers range in thickness from 1.5 to 7 m. Sulphide bearing quartz veins and sulphide stringers occur in the mineralized and non-mineralized layers, and are both parallel and oblique to lithologic boundaries.

AREA: Between south end of Vandekerckhove Lake and southwest part of Zed Lake.

AIRPHOTO: A14889-166

GEOCHEMICAL DATA:

Assay values reported in the drill logs for assay intervals of 1.5 m are:

Cu - nil to 0.40%
Zn - nil to 0.08%
Ni - nil to 0.03%

Precious metal values are not reported and may not have been determined.

CLASSIFICATION:

Disseminated sulphide in clastic sedimentary rocks. The sulphide in quartz veins and sulphide stringers are probably mobilizate associated with metamorphism of the host sedimentary rocks.

REFERENCES:

Assessment File 92222
Manitoba Energy and Mines, Minerals Division.

Gilbert, H.P., Syme, E.C. and Zwanzig, H.V.
1980: Geology of the metavolcanic and volcaniclastic metasedimentary rocks in the Lynn Lake area; Manitoba Energy and Mines, Mineral Resources Division, Geological Paper GP80-1, 118 p.

LOCATION: 32

NAME:

UTM: 6298111N 358886E

ACCESS: Via float plane from Lynn Lake and a 1 km traverse from the east shore of "J" Lake.

AREA: 1 km east of the east shoreline of "J" Lake.

AIRPHOTO: A24298-186

EXPLORATION SUMMARY:

A Ronka geophysical survey and four DDH were completed by Sherritt Gordon Mines Ltd. in 1960 The ground is presently held in good standing by LynnGold Resources Inc.

GEOLOGICAL SETTING:

Gilbert *et al.* (1980) show that the area surrounding the occurrence is underlain by a late tonalite pluton that intruded mafic to felsic volcanic rocks and volcanic, plutonic and sedimentary-derived conglomerate. However, drill logs (Sherritt Gordon Mines Ltd., written communication, 1983) indicate that the occurrence is hosted by intermediate volcanic rocks that are intruded by a minor amount of fine grained diorite. The volcanic host rocks are possibly a large inclusion in the tonalite pluton.

MINERALIZATION:

The description of the mineralization is taken from drill logs supplied to the author by Sherritt Gordon Mines Ltd. (written communication, 1983). The mineralization appears to occur in two zones that are 122 m apart. Zone 1 is approximately 8.25 m thick comprising a 5.5 m thick layer of moderately (10 to 40%) disseminated pyrite, pyrrhotite and chalcopyrite, and a 2.7 m thick layer of near solid (60%) pyrite, pyrrhotite and chalcopyrite. Solid sulphide stringers are present in the moderately disseminated sulphide layer. Zone 2 consists of a 1 m thick layer of near solid (60%) pyrite, pyrrhotite and chalcopyrite. Most chalcopyrite occurs in solid sulphide stringers.

Associated with these mineralized zones there is minor disseminated sulphide, sulphide stringers and garnet-biotite alteration that occurs on both sides of each of the mineralized zones.

GEOCHEMICAL DATA:

No public information.

CLASSIFICATION:

Volcanic rock-associated stratabound massive sulphide type mineralization.

REFERENCES:

Gilbert, H.P., Syme, E.C. and Zwanzig, H.V.

1980: Geology of the metavolcanic and volcaniclastic metasedimentary rocks in the Lynn Lake area; Manitoba Energy and Mines, Mineral Resources Division, Geological Paper GP 80-1, 117 p.

Sherritt Gordon Mines Ltd.

Written communication, 1983.

LOCATION: 33

NAME:

UTM: 6295013N 358658E

ACCESS: Via float plane from Lynn Lake and a 1 km traverse from shore of southern bay of "J" Lake.

AREA: 1 km southeast of the southern bay of "J" Lake.

AIRPHOTO: A24298-185

EXPLORATION SUMMARY:

Ronka geophysical survey and five DDH were completed by Sherritt Gordon Mines Ltd. in 1960.

GEOLOGICAL SETTING:

The area is covered by glacial deposits. However, drill logs (Sherritt Gordon Mines Ltd., written communication, 1983) indicate that the geology at the occurrence comprises intermediate volcanic tuff interlayered with basic volcanic flows.

MINERALIZATION:

The following description of the mineralization is compiled from drill logs supplied to the author by Sherritt Gordon Mines Ltd. The mineralized zone has a lateral extent of approximately 300 m and ranges in thickness from 2.2 to 9.7 m; it thins toward the southeast. In the northwest the mineralized zone comprises two near solid sulphide (60 to 70% Po, Py) layers 1.8 m and 2.7 m thick separated by 5 m of altered andesitic rock that contains 1 to 6% disseminated pyrrhotite and pyrite. Toward the southeast the mineralization consists of a single 2.2 to 4.5 m thick zone comprising interlayered near solid sulphide (50%) and chert. The sulphide mineralogy is pyrrhotite, pyrite and minor chalcopyrite. Adjacent to, and on the northeast side of, the sulphide mineralization the rocks are altered to a biotite-chlorite rock contains garnet, secondary plagioclase and minor disseminated sulphide. The spatial distribution of the sulphide and alteration products suggests that stratigraphic tops are toward the southwest.

GEOCHEMICAL DATA:

No public information.

CLASSIFICATION:

Volcanic rock-associated stratabound massive sulphide type mineralization.

REFERENCES:

Sherritt Gordon Mines Ltd.
Written communication, 1983

LOCATION: 34

NAME:
AREA:1.5 km north of Ralph Lake.
ACCESS: Via Hwy. 394 north from Lynn Lake.

EXPLORATION SUMMARY:

Sherritt Gordon Mines Ltd., conducted EM-17 and MF-2 geophysical surveys and drilled five diamond drill holes (pers. comm., Sherritt Gordon Mines Ltd., 1984).

GEOLOGICAL SETTING:

There are few outcrops in the vicinity of the occurrence and most of the area is swampy ground (Gilbert *et al.*, 1980). Bedrock exposures suggest that the area is underlain by biotite-bearing metagreywacke migmatite. Drill hole data obtained from Sherritt Gordon Mines Ltd. (pers. comm. Sherritt Gordon Mines Ltd., 1984) indicate that the area is underlain by argillaceous metasandstone.

MINERALIZATION:

Mineralization consists of disseminated pyrite in 1 to 1.5 m thick graphitic zones in argillaceous metasandstone (pers. comm. Sherritt Gordon Mines Ltd., 1984).

UTM: 6308681N 372417E
AIRPHOTO: A14889-168

GEOCHEMICAL DATA:

No public information.

CLASSIFICATION:

Disseminated mineralization probably of the chemical sediment type, but could also be clastic sediment type mineralization.

REFERENCES:

Gilbert, H.P., Syme, E.C. and Zwanzig, H.V.
1980: Geology of the metavolcanic and volcaniclastic metasedimentary rocks in the Lynn Lake Area; Manitoba Energy and Mines, Mineral Resources Division, Geological Report GR80-1, 118 p.

LOCATION: 35

NAME:
UTM: 6305448N 369722E
ACCESS: Via Hwy. 394 to boat landing at Ralph Lake. Boat to west shore of Ralph Lake and follow foot trail from Ralph Lake to Merle Lake.

EXPLORATION SUMMARY:

Sherritt Gordon Mines Ltd. conducted ground geophysical surveys and drilled one diamond drill hole (pers. comm., Sherritt Gordon Mines Ltd., 1983).

GEOLOGICAL SETTING:

Bedrock is covered by glacial overburden and swampy ground (Gilbert *et al.*, 1980). Diamond drill hole information (pers. comm., Sherritt Gordon Mines Ltd., 1983) indicates the area is underlain by metagreywacke, meta-argillite and biotite-muscovite schist. These rocks are probably equivalent to the biotite-bearing metagreywacke migmatite of Gilbert *et al.* (1980).

MINERALIZATION:

Mineralization consists of disseminated pyrite in a 1 m thick graphitic zone in a metagreywacke and meta-argillite succession (pers. comm., Sherritt Gordon Mines Ltd., 1983).

AREA: West shore of Ralph Lake.
AIRPHOTO: A24299-438

GEOCHEMICAL DATA:

Assay values from the mineralized zone are 0.02 to 0.03% Cu and 0.01 to 0.03% Zn.

CLASSIFICATION

Disseminated mineralization possibly of the chemical sediment type, but could also be clastic sediment type mineralization.

REFERENCES:

Gilbert, H.P., Syme, E.C. and Zwanzig, H.V.
1980: Geology of the metavolcanic and volcaniclastic metasedimentary rocks in the Lynn Lake area; Manitoba Energy and Mines, Mineral Resources Division, Geological Report GR80-1, 118 p.

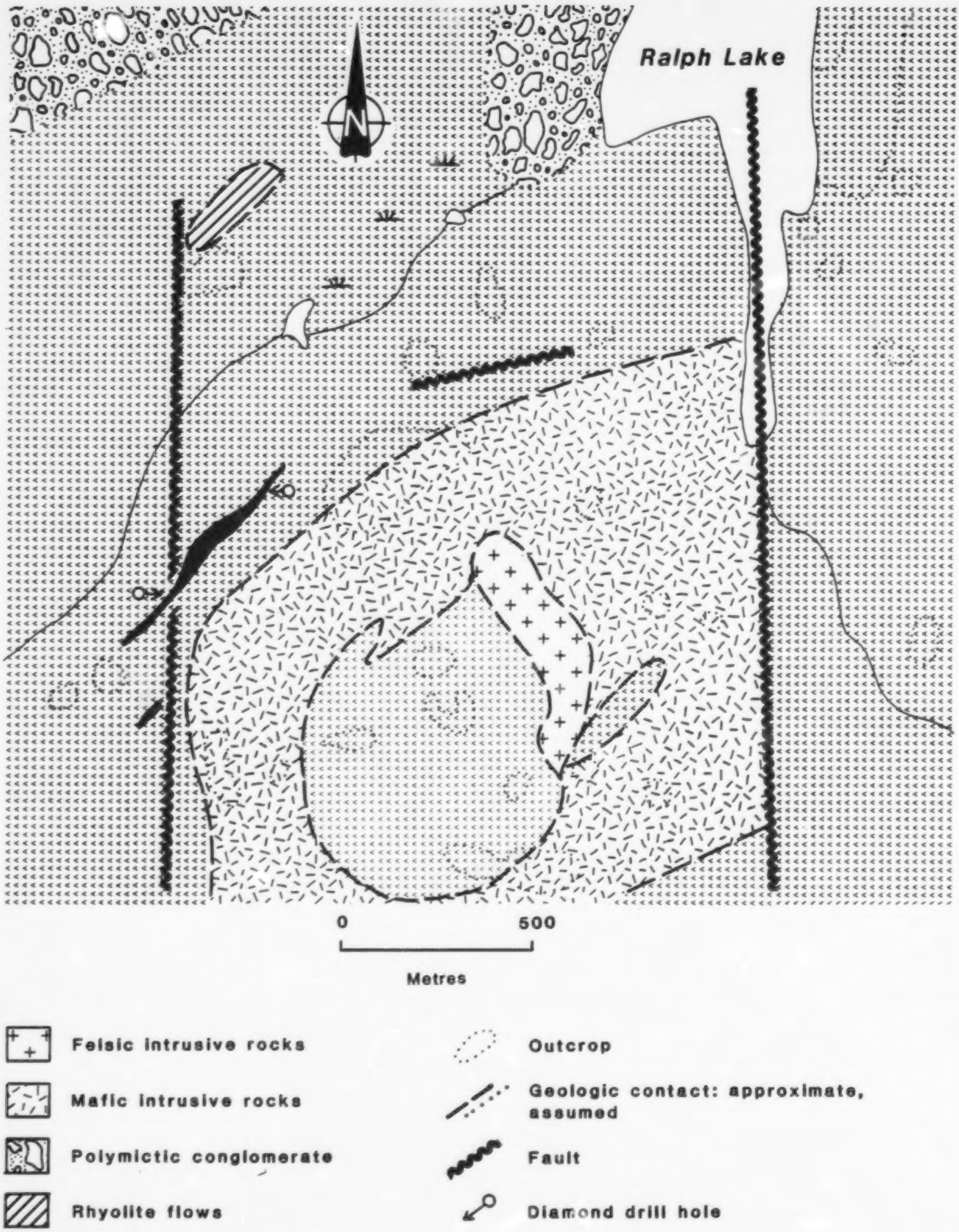

Ralph Lake
N
0
500
Metres
Felsic intrusive rocks
Mafic intrusive rocks
Polymictic conglomerate
Rhyolite flows
Basalt & andesite flows and breccia
Outcrop
Geologic contact: approximate, assumed
Fault
Diamond drill hole
Geophysical conductor

Figure 36-1: Geology of the area southwest of Ralph Lake (after Gilbert et al., 1980).

LOCATION: 36

NAME:

UTM: 6302220N 368965E

ACCESS: Northwest from Lynn Lake via Hwy. 394 to boat landing at Ralph Lake. Boat to south shore of Ralph Lake and a 1.5 km traverse.

EXPLORATION SUMMARY:

An electromagnetic survey and three diamond drill holes were completed by Sherritt Gordon Mines Ltd. in 1967.

GEOLOGICAL SETTING:

The area is underlain by mafic volcanic rocks that were intruded by a mafic plutonic body (Fig. 36-1). The mafic volcanic rocks include massive porphyritic and aphyric basalt flows, heterolithic breccia and minor tuff. To the east the mafic volcanic and plutonic rocks are truncated by a north trending fault.

MINERALIZATION:

There are no drill logs for the drill holes. However, a geological report (Sherritt Gordon Mines Ltd.) records 4.5 m of banded pyrite and pyrrhotite.

AREA: 1.5 km southwest of the south shore of Ralph Lake.

AIRPHOTO: A24299-45

GEOCHEMICAL DATA:

The geologists' report (Sherritt Gordon Mines Ltd.) lists assay values of 0.06% Cu, trace Au and trace Ag, but the drill hole these values came from was not identified, nor was the width of the assayed interval.

CLASSIFICATION:

Probably volcanic rock-associated stratabound massive sulphide type mineralization.

REFERENCES:

Gilbert, H.P., Syme, E.C. and Zwanzig, H.V.
1980: Geology of the metavolcanic and volcaniclastic metasedimentary rocks in the Lynn Lake area; Manitoba Energy and Mines, Mineral Resources Division, Geological Paper, GP80-1, 118 p.

Sherritt Gordon Mines Ltd.
Internal geological report.

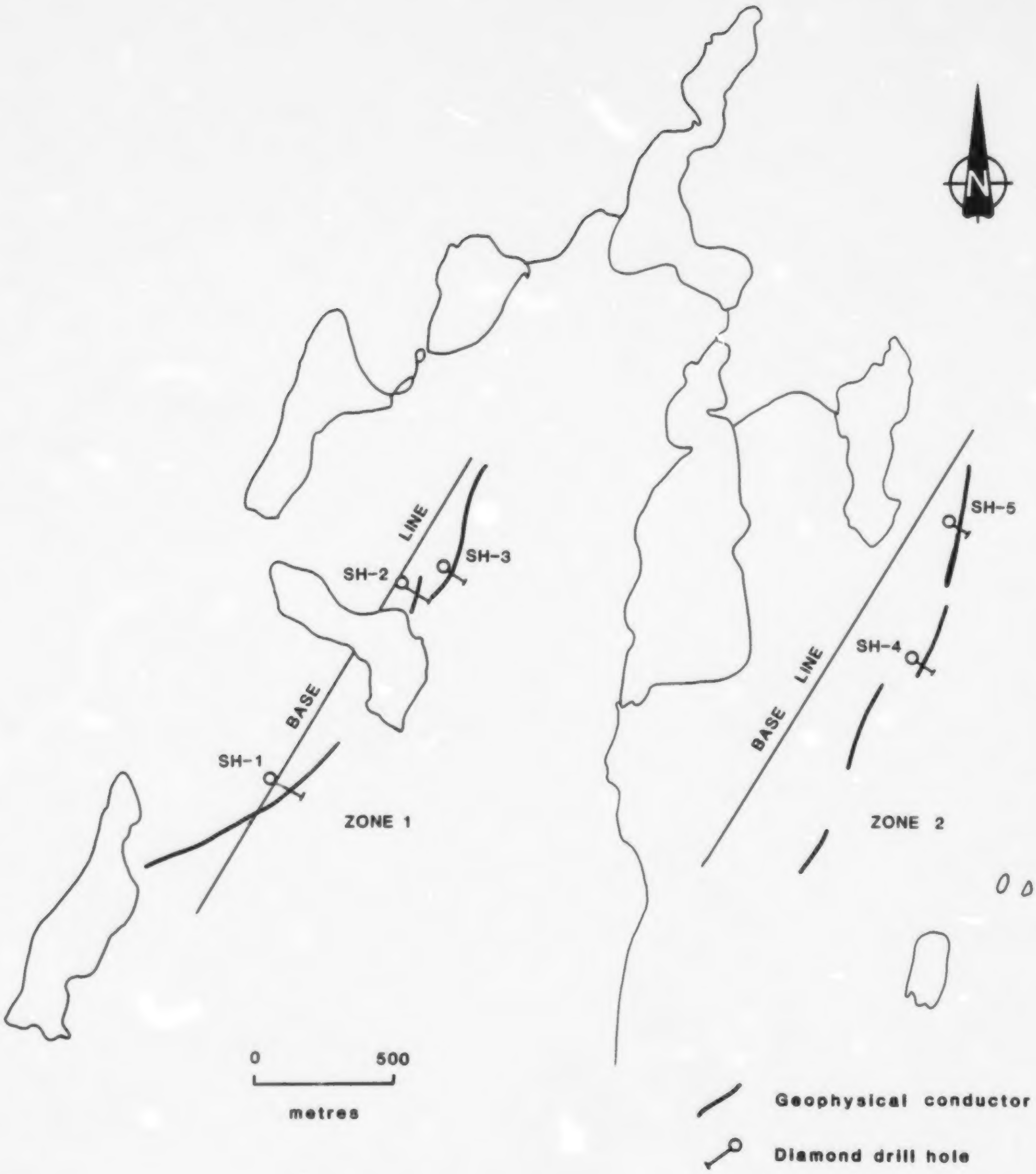

N
BASE LINE
SH-2
SH-3
SH-1
ZONE 1
BASE LINE
SH-5
SH-4
ZONE 2
0
500
metres
Geophysical conductor
Diamond drill hole

Figure 37-1: Location of geophysical conductors and diamond drill holes at mineral locality 37.

LOCATION: 37

NAME:
UTM: 6295059N 353559E
ACCESS: Via float plane from Lynn Lake.

AREA: 21 km west southwest from Lynn Lake.
AIRPHOTO: A24298-185

EXPLORATION SUMMARY:

EM-17 and MF-2 geophysical surveys and five diamond drill holes by Sherritt Gordon Mines Ltd. in 1977.

GEOLOGICAL SETTING:

The area of the mineral occurrence is covered by 1 to 30 m of overburden. From diamond drill hole information it appears that in the vicinity of drill holes SH-1, SH-2 and SH-3 (Fig. 37-1) the area is underlain by an interlayered sequence of rhyolite tuff, rhyolite lapilli-tuff, rhyolite agglomerate and minor intermediate tuff and lapilli tuff (A.F. 92274). In the vicinity of drill holes SH-4 and SH-5 (Fig. 37-1) the area is apparently underlain by bedded meta-argillite containing minor 0.3 to 1.25 m thick layers of graphitic meta-argillite and minor tuff of intermediate composition (A.F. 92274). Although there are no outcrops in the area, the distribution of geophysical conductors and lithologies in diamond drill holes suggests that the strike of lithologic units is approximately 025 degrees and the dip is 75 to 80 degrees to the west.

MINERALIZATION:

There are two zones of mineralization on the property (Fig. 37-1). Zone 1 consists of three separate geophysical conductors that appear to define a single mineralized zone. The style of mineralization and the host rocks at the three conductors are similar and thus they may be stratigraphically equivalent. The mineralization consists of minor to moderate (3 to 5%) disseminated pyrrhotite, pyrite and magnetite with trace chalcopyrite and sphalerite over a drill intersection of 15 to 30 m. The amount of sulphide appears to decrease in abundance from northeast to southwest along the zone. In diamond drill hole SH-2 there is a 0.35 m wide intersection of 50% disseminated pyrrhotite, pyrite, magnetite and trace chalcopyrite within the thicker zone of minor to moderate mineralization. Sulphide stringers occur in and are associated with the mineralized rock.

Zone 2 consists of four separate geophysical conductors (Fig. 37-1). The two northern ones may be stratigraphically equivalent, but the relationship between these and the conductors to the south is unknown because the two conductors in the south have not been tested with diamond drilling. The style of the mineralization is similar to that in Zone 1. However, in Zone 2, the disseminated and stringer mineralization is associated with graphitic layers in meta-argillite.

GEOCHEMICAL DATA:

Samples from DDH SH-1 and SH-2 were assayed for Ni, Cu and Zn. Those from DDH SH-3, SH-4 and SH-5 were assayed for Ni, Cu, Zn, Au and Ag. The assay values are summarized below:

DDH	Assay Width (m)	Ni% g/t	Cu% g/t	Zn%	Au	Ag
SH-2	0.21	nil	0.06	nil	nd	nd
SH-3	0.67	nil	0.02	nil	nil	nil
	0.91	nil	nil	nil	nil	3.11
	1.34	nil	nil	nil	nil	4.9
	1.09	nil	nil	nil	0.6	6.2
SH-4	0.24	nil	0.01	0.1	nil	nil
SH-5	0.10	nil	nil	0.2	nil	9.9
	0.40	nil	nil	0.2	tr	nil
	0.97	0.5	nil	0.6	nil	nil
	1.30	nil	nil	0.2	nil	nil

CLASSIFICATION:

Disseminated mineralization not classified.

REFERENCES:

Assessment File 92274
Manitoba Energy and Mines, Minerals Division

Gilbert, H.P., Syme, E.C. and Zwanzig, H.V.
1980: Geology of the metavolcanic and volcaniclastic metasedimentary rocks in the Lynn Lake area; Manitoba Energy and Mines, Mineral Resources Division, Geological Paper GP80-1, 118 p.

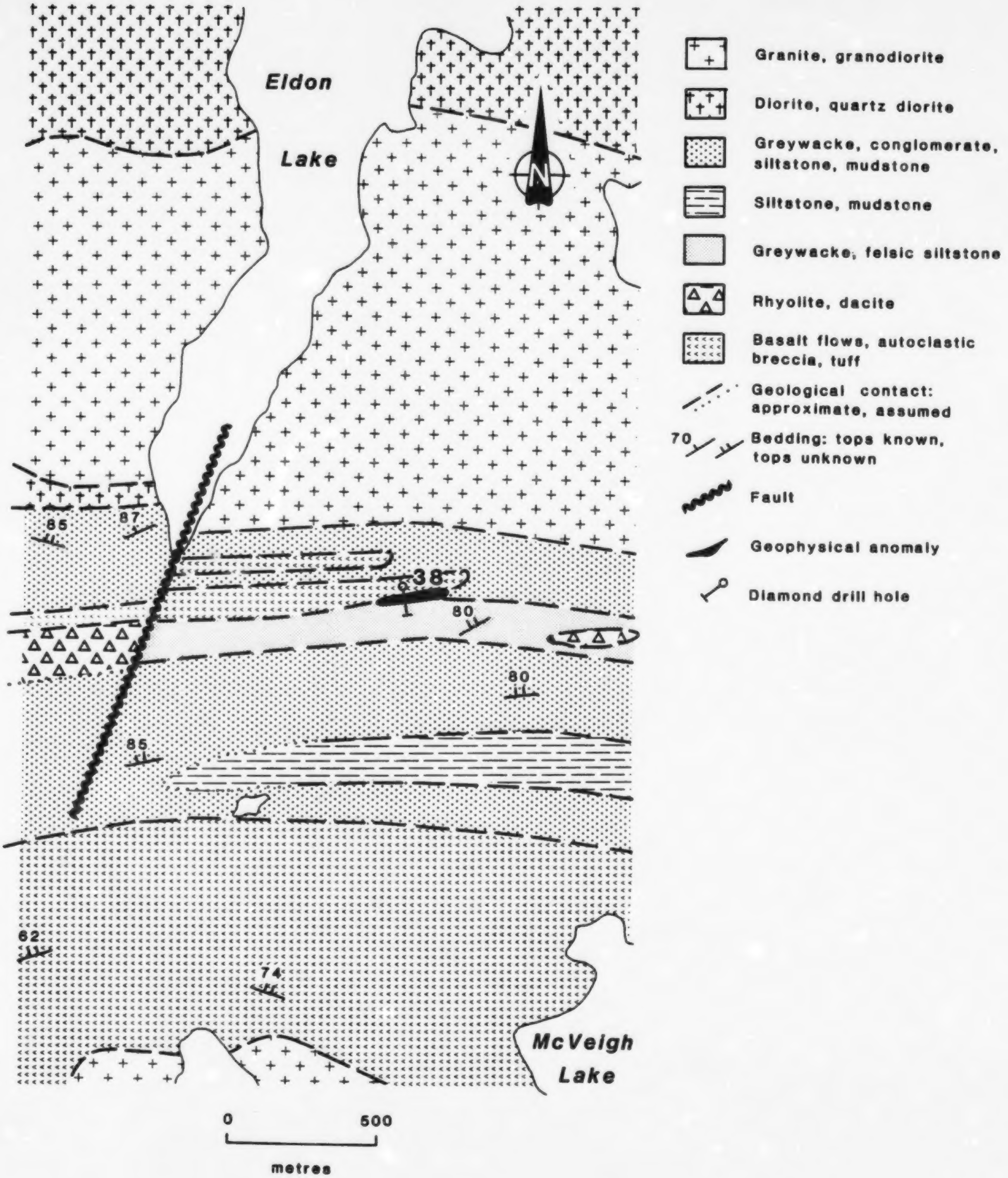

Eldon
Lake
N
85
87
38
80
80
85
62
74
McVeigh
Lake
Granite, granodiorite
Diorite, quartz diorite
Greywacke, conglomerate, siltstone, mudstone
Siltstone, mudstone
Greywacke, felsic siltstone
Rhyolite, dacite
Basalt flows, autoclastic breccia, tuff
Geological contact: approximate, assumed
70
Bedding: tops known, tops unknown
Fault
Geophysical anomaly
Diamond drill hole
0
500
metres

Figure 38-1: Geological setting of the area around the south end of Eldon Lake (Geology after Gilbert et al., 1980).

LOCATION: 38

NAME:

UTM: 6295053N 377362E

ACCESS: Boat from Manitoba Energy and Mines expediting base at Eldon Lake to south end of lake and traverse.

AREA: 1.3 km east of the south end of Eldon Lake.

AIRPHOTO: A24142-175

EXPLORATION SUMMARY:

The ground was originally staked in 1945 by Sherritt Gordon Mines Ltd. as part of the Elb group of leased claims. Several geophysical surveys including magnetic and electromagnetic surveys have been conducted in the area. One diamond drill hole has been drilled by Sherritt Gordon Mines Ltd. The ground is presently held by LynnGold Resources Inc.

GEOLOGICAL SETTING:

The area is underlain by an east-trending, north to northwest steeply dipping sequence of metasedimentary rocks and minor intercalated metavolcanic rocks (Fig. 38-1; Gilbert et.al., 1980; Milligan, 1960).

MINERALIZATION:

Stringer and disseminated pyrrhotite occur sporadically over 43 m in felsic tuff with minor intercalated intermediate tuff. Where present the sulphide constitutes 2% to 5% of the rock.

GEOCHEMICAL DATA:

None

CLASSIFICATION:

Disseminated sulphide mineralization not classified. The stringer sulphide is probably a metamorphic mobilizate.

REFERENCES:

Gilbert, H.P., Syme, E.C. and Zwanzig, H.V.

1980: Geology of the metavolcanic and volcaniclastic metasedimentary rocks in the Lynn Lake area; Manitoba Energy and Mines, Mineral Resources Division, Geological Paper GP80-1, 118 p.

Milligan, G.C.

1960: Geology of the Lynn Lake district, Manitoba; Manitoba Department of Mines and Natural Resources, Mines Branch, Publication 57-1, 317 p.

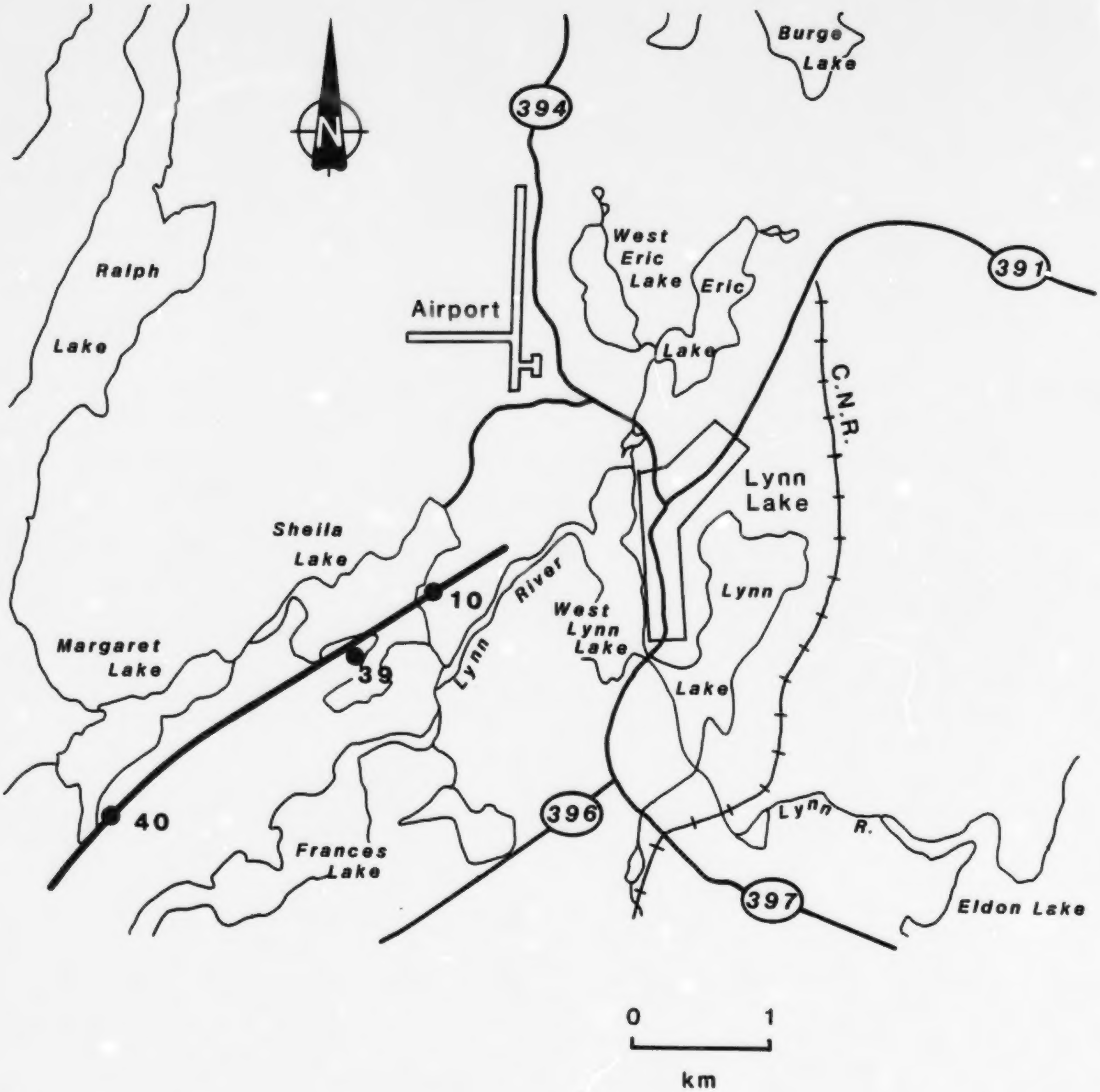

Burge Lake
394
N
Ralph Lake
Airport
West Eric Lake
Eric Lake
391
C.N.R.
Lynn Lake
Sheila Lake
10
Lynn River
West Lynn Lake
Lynn Lake
Margaret Lake
39
40
396
Lynn R.
Frances Lake
397
Eldon Lake
0
1
km

Figure 39-1: Sketch showing location of and access to mineral localities 10, 39 and 40.

LOCATION: 39

NAME:

UTM: 6301336N 372598E

ACCESS: Via Hwy. 394 to gravel road immediately south of entrance to Lynn Lake airport, follow gravel road to northeast shore of Sheila Lake and boat to occurrence (Fig. 39-1).

AREA: Peninsula in Sheila Lake.

AIRPHOTO: A24299-46

EXPLORATION SUMMARY:

Trenching of unknown age. Sherritt Gordon Mines Ltd. conducted line cutting and geophysical surveys in 1978 and geological mapping in 1984 (Sherritt Gordon Mines Ltd., pers. comm. 1984).

GEOLOGICAL SETTING:

The area is underlain by mafic to felsic volcaniclastic sedimentary rock and minor mafic and felsic flow rocks (Gilbert et.al., 1980). The sedimentary rocks are probably redeposited pyroclastic material. These rocks include, heterolithic volcanic breccia, polymictic volcanic derived conglomerate, greywacke, siltstone and minor mudstone (Baldwin, 1983; Ferreira, 1986).

The geology of the occurrence comprises a bedded sequence of polymictic conglomerate and greywacke, lithic greywacke with minor interbedded amphibolite and siltstone, pyritic felsic sandstone, and siltstone and heterolithic felsic volcanic breccia and tuff (Fig. 39-2; Baldwin, 1983).

MINERALIZATION:

The mineralization consists of a 40 m thick unit of siliceous, felsic pyritic sandstone and siltstone that contains minor (2% to 5%) finely disseminated pyrite and arsenopyrite with local sulphide mobilizate concentrated in 0.5 to 1.5 mm wide stringers.

GEOCHEMICAL DATA:

Continuous chip samples were taken from six trenches (Fig. 39-2) and analyzed for Au, Ag and As. Base metal analyses were not done because grab samples from the trenches returned nil or trace for these elements. Analytical results of the continuous chip samples are tabulated below.

Trench	Au pb	Ag ppm	As ppm
1	12	1	10
2	12	1	3
3	26	1	8
4	26	1	59
5	12	1	53
6	12	1	42

CLASSIFICATION:

The mineralization at this occurrence is at the same stratigraphic position, occurs in the same host rocks, and is on the same geophysical conductor as the mineralization at Locality 10. Thus the occurrence is classified as sedimentary rock-associated massive sulphide type mineralization even though there is no solid sulphide layer at this occurrence, nor alteration associated with this deposit class.

REFERENCES:

Baldwin, D.A.

1983: Stratigraphic studies of felsic volcanic rocks associated with mineral occurrences in the Lynn Lake area; in Manitoba Energy and Mines, Mineral Resources Division, Report of Field Activities 1983, p. 88-93.

Ferreira, K.

1986: Geological investigations in the Sheila Lake-Margaret Lake area; in Manitoba Energy and Mines, Minerals Division, Report of Field Activities 1986, p. 8-12.

Gilbert, H.P., Syme, E.C. and Zwanzig, H.V.

1980: Geology of the metavolcanic and volcaniclastic metasedimentary rocks in the Lynn Lake area; Manitoba Energy and Mines, Mineral Resources Division, Geological Paper GP80-1, 118 p.

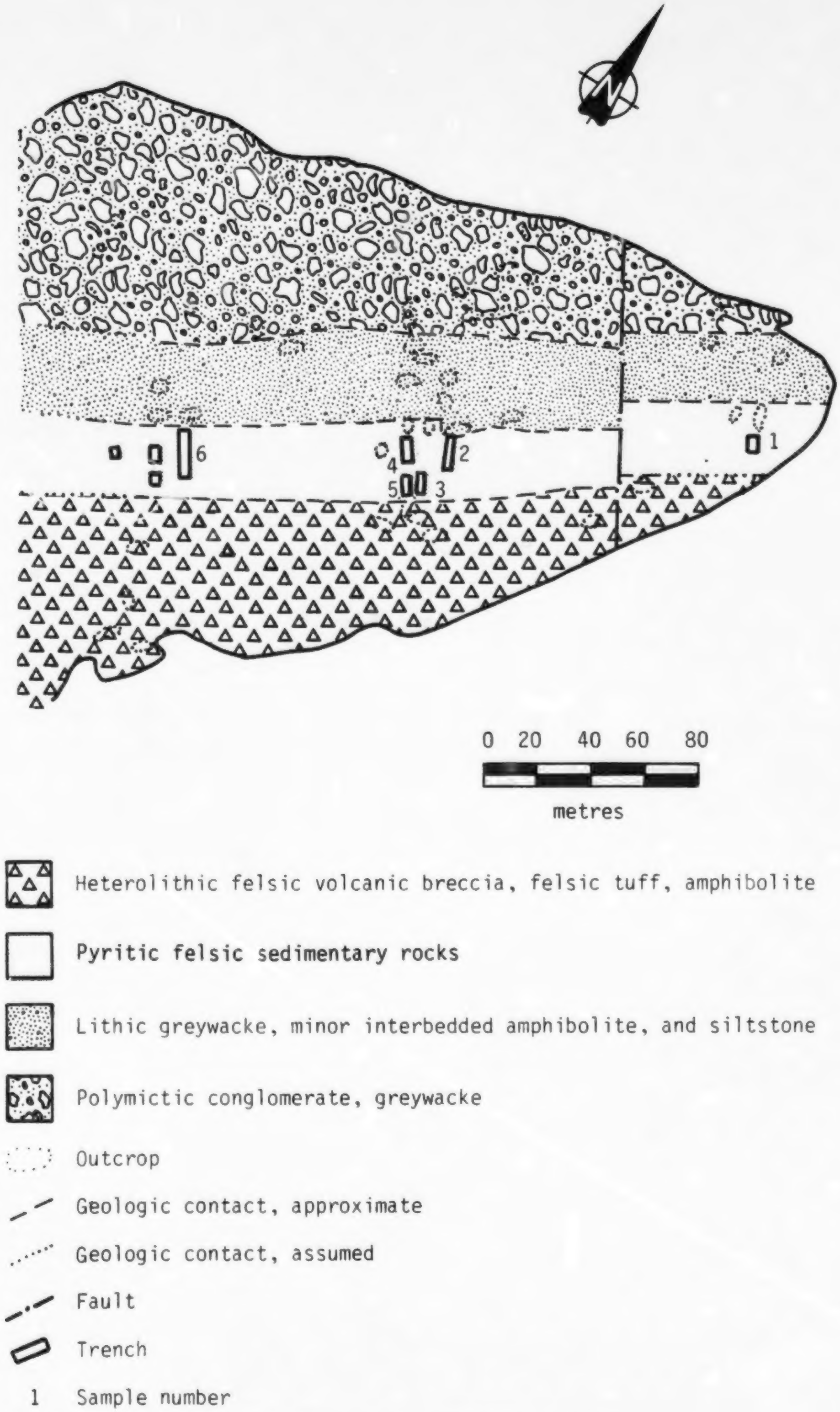

N
1
2
3
4
5
6
0 20 40 60 80
metres
Heterolithic felsic volcanic breccia, felsic tuff, amphibolite
Pyritic felsic sedimentary rocks
Lithic greywacke, minor interbedded amphibolite, and siltstone
Polymictic conglomerate, greywacke
Outcrop
Geologic contact, approximate
Geologic contact, assumed
Fault
Trench
1 Sample number

Figure 39-2: Detailed geology and trench location at mineral locality 39.

LOCATION: 40

NAME:
UTM: 6300271N 370665E
ACCESS: Via Hwy. 394 to gravel road immediately south of entrance to Lynn Lake airport, follow gravel road to Sheila Lake and boat to Margaret Lake (Fig. 39-1).

AREA: East shore in southwest part of Margaret Lake.
AIRPHOTO: A24299-46

EXPLORATION SUMMARY:

Conwest Exploration staked the ground and did geological mapping in 1947. Sherritt Gordon Mines Ltd. conducted line cutting and geophysical surveys in 1978 and geological mapping in 1984 (pers. comm., Sherritt Gordon Mines Ltd., 1984).

GEOLOGICAL SETTING:

The area is underlain by mafic to felsic volcaniclastic sedimentary rocks and minor mafic and felsic flow rocks (Gilbert et.al., 1980). The volcaniclastic sedimentary rocks are probably redeposited pyroclastic material and include heterolithic volcanic breccia, polymictic volcanic derived conglomerate, greywacke, siltstone and minor mudstone (Baldwin, 1983, Ferreira, 1986).

At the mineral occurrence there is approximately 450 m of bedded metasedimentary rocks that differ in grain size, mineralogy, bed thickness, composition, type and degree of alteration (Ferreira, 1986), and minor mafic intrusive rocks. The geology of the occurrence is illustrated in Figure 40-1.

MINERALIZATION:

The mineralization comprises 1 to 5% sulphide that is finely disseminated in metasedimentary rock. The sulphide-bearing rock forms mineralized layers that range in thickness from 20 to 40 m. The sulphide mineralogy is mainly pyrrhotite with minor pyrite and arsenopyrite. The mineralized metasedimentary rock is siliceous (silicified) and preservation of primary textures and structures is poor. In addition to alteration, evidenced by the presence of sulphide and silicification, other types of alteration include: 1) quartz-carbonate veinlets and veins, 0.2 to 2 cm wide, are generally discontinuous, discordant to foliation and bedding; 2) veinlets of quartz, with a habit similar to the quartz-carbonate veinlets and veins, have a border zone, in the metasedimentary host rocks, composed of chlorite or chlorite and carbonate, in which the abundance of chlorite and/or carbonate decreases away from the contact between the veinlets and the host rock; and 3) pinkish-white carbonate and green chlorite occur as irregular-shaped patches 65 to 70 cm across in the metasedimentary rocks.

GEOCHEMICAL DATA:

Five grab samples of mineralized metasedimentary rock and one grab sample of a mafic intrusive rock were collected for geochemical analysis. The results are tabulated below:

Sample	Lithology (Fig. 40-1)	Au ppb	Ag ppm	Ni ppm	Cu ppm
1	Pyritic sediment	7	1	nd	nd
2	Pyritic sediment	1	1	0	0
3	Intrusive rock	3	1	387	1127
4	Felsic tuff	9	0	nd	nd
5	Felsic tuff	5	0	nd	nd
6	Felsic tuff	7	1	0	0

nd - not determined

In addition 13 grab samples were collected from outcrops of pyritic sedimentary rocks that occur northeast of, and along strike from, the described occurrence. The geochemical results for these samples are summarized below:

Ag - nil - 300 ppm
Cu - 18 - 305 ppm
Zn - 54 - 260 ppm
Pb - tr - 2ppm

CLASSIFICATION:

Because this occurrence is located in the same stratigraphic position and lithologic sequence as occurrences 10 and 39 and is on the same geophysical conductor as the other two occurrences, it is considered to be genetically related to occurrences 10 and 39. These two occurrences have been classified as sedimentary rock-associated massive sulphide type mineralization. Occurrence 40 is similarly classified and is probably a disseminated distal equivalent to the solid sulphide mineralization at occurrence 10.

REFERENCES:

Baldwin D.A.
1983: Stratigraphic studies of felsic volcanic rocks associated with mineral occurrences in the Lynn Lake area; in Manitoba Energy and Mines, Mineral Resources Division, Report of Field Activities 1983, p. 88-93.

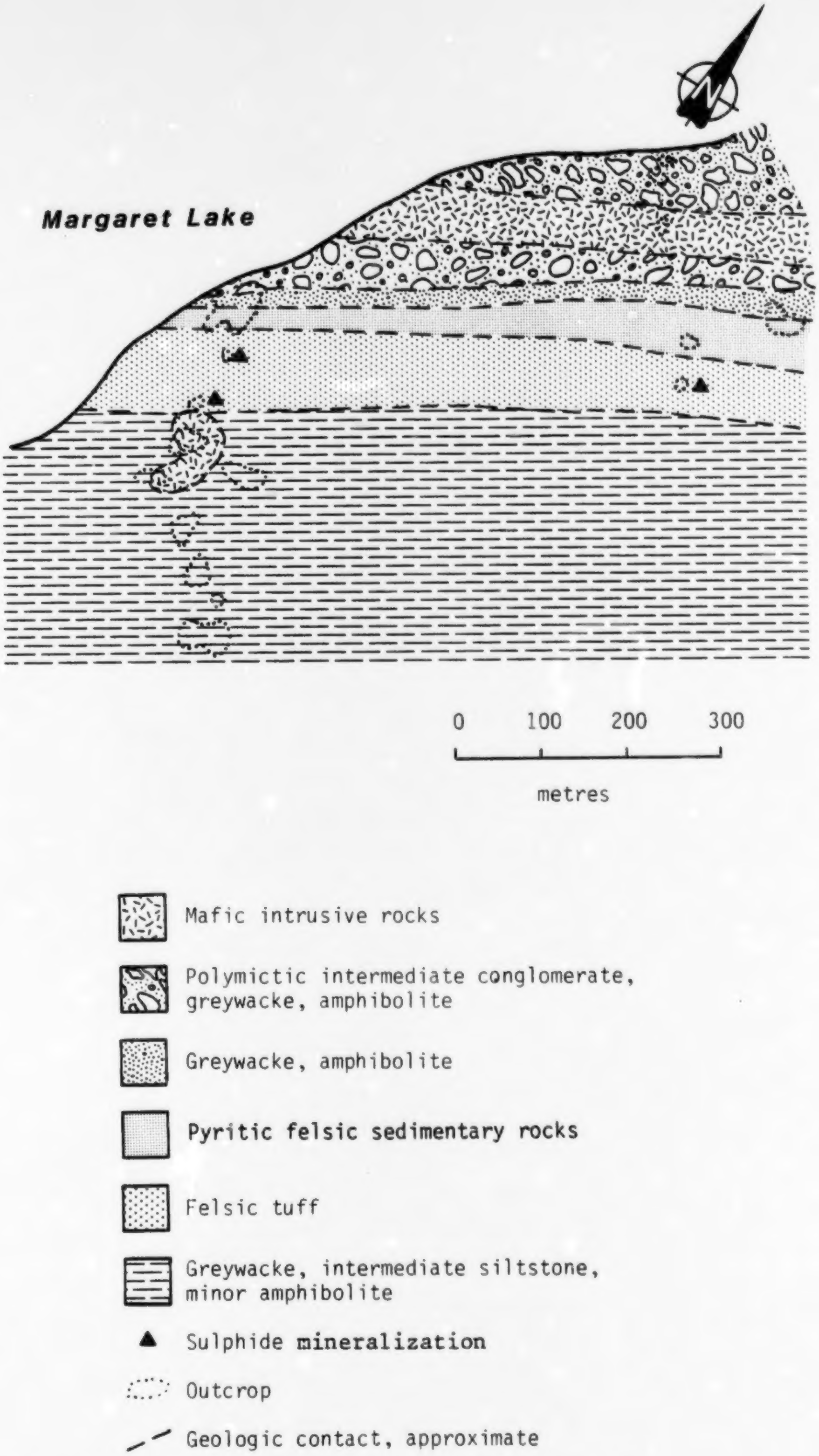
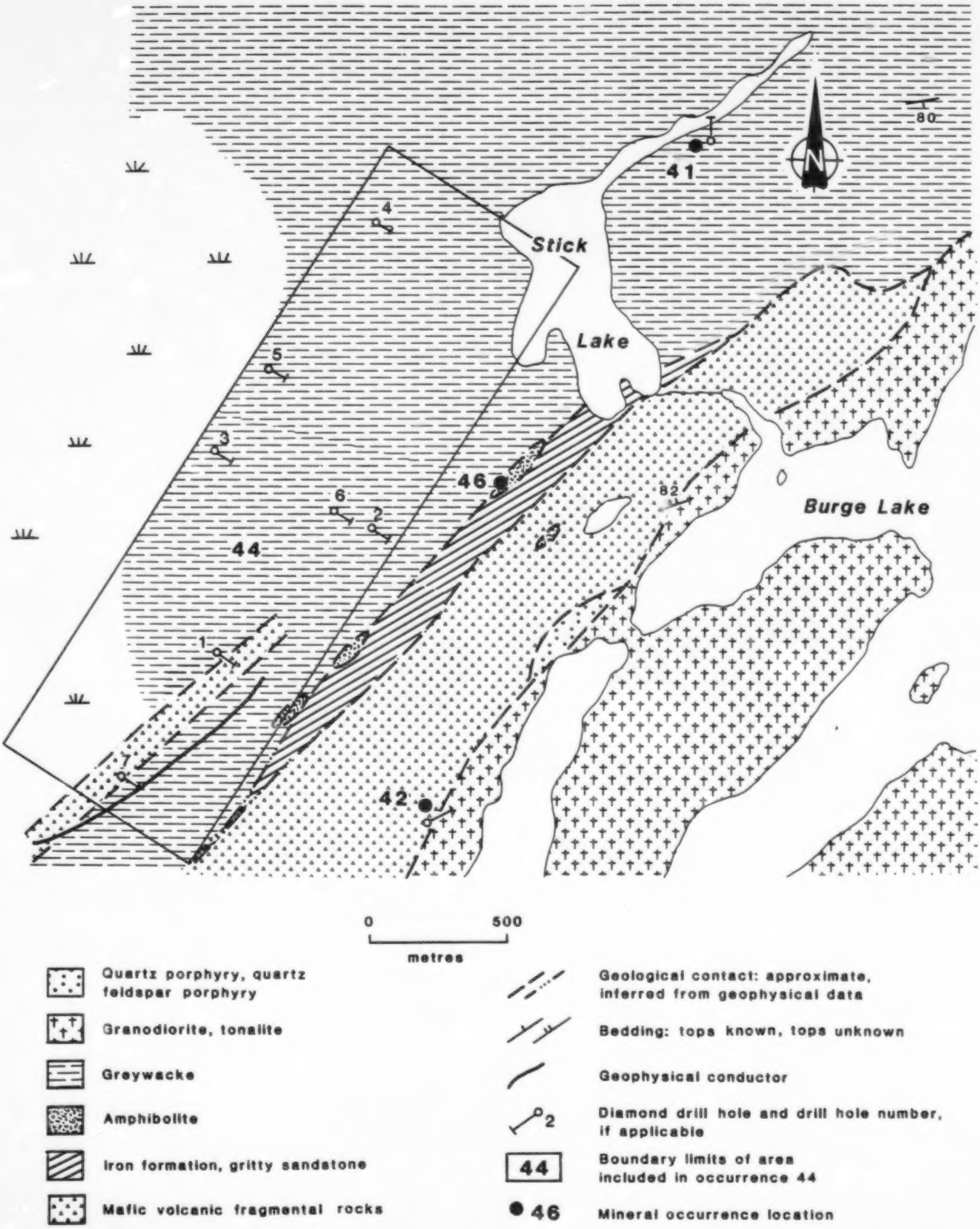

Margaret Lake
N
0
100
200
300
metres
Mafic intrusive rocks
Polymictic intermediate conglomerate, greywacke, amphibolite
Greywacke, amphibolite
Pyritic felsic sedimentary rocks
Felsic tuff
Greywacke, intermediate siltstone, minor amphibolite
▲ Sulphide mineralization
Outcrop
Geologic contact, approximate

Figure 40-1: Detailed geology and sulphide occurrences at mineral locality 40.

Ferreira, K.
1986: Geological investigations in the Sheila Lake - Margaret Lake area; in Manitoba Energy and Mines, Minerals Division, Report of Field Activities 1986, p. 8-12.

Gilbert, H.P., Syme, E.C. and Zwanzig, H.V.
1980: Geology of the metavolcanic and volcaniclastic metasedimentary rocks in the Lynn Lake area; Manitoba Energy and Mines, Mineral Resources Division, Geological Paper GP 80-1, 118 p.



Stick
Lake
Burge Lake
41
44
46
42
80
82
N
4
5
3
6
2
1
7
0
500
metres
Quartz porphyry, quartz feldspar porphyry
Granodiorite, tonalite
Greywacke
Amphibolite
Iron formation, gritty sandstone
Mafic volcanic fragmental rocks
Geological contact: approximate, inferred from geophysical data
Bedding: tops known, tops unknown
Geophysical conductor
Diamond drill hole and drill hole number, if applicable
Boundary limits of area included in occurrence 44
Mineral occurrence location

Figure 41-1: Geological setting of mineral occurrences in the area northeast of Burge Lake (Geology modified from Gilbert et al., 1980)

LOCATION: 41

NAME:

UTM: 6311886N 377266E

ACCESS: Via Hwy. 394 north from Lynn Lake to boat landing at Burge Lake; boat to Stick Lake.

EXPLORATION SUMMARY:

The ground was originally staked in 1945 and has an active history of restaking. In 1947 magnetometer and geological surveys were conducted for Hoodoo Lake Mines Ltd. (A.F. 91384). There was no further development work recorded until 1977 when Granges Exploration Ltd. drilled one DDH on the property (A.F. 92698). The ground is presently held by Manitoba Mineral Resources Ltd.

GEOLOGICAL SETTING:

The area is underlain by polymictic metaconglomerate and metagreywacke (Fig. 41-1). The metaconglomerate consists of volcanic, sedimentary and granitoid clasts in a biotitic greywacke matrix. The metagreywacke is biotitic and locally contains garnet porphyroblasts (Gilbert *et al.*, 1981).

MINERALIZATION:

The mineralization comprises a 7.3 m intersection of disseminated sulphide in quartz-biotite schist with garnet-bearing bands (A.F. 92698). This rock is probably metagreywacke. Sulphide minerals are pyrrhotite and pyrite in amounts of 2 to 20% and 0 to 2%, respectively. Locally there are a few chalcopyrite grains. Within the mineralized intersection a 1.5 m zone contains 5% graphite.

AREA: Northeast arm of Stick Lake.

AIRPHOTO: A14889-169

GEOCHEMICAL DATA:

Assay values from the diamond drill hole are: Au - 0.03 g/tonne; Ag - 0.3 to 1.89 g/tonne; Cu - 0.02 to 0.1%; Zn - 0.01 to 0.03% (A.F. 92698)

CLASSIFICATION:

Disseminated sulphide mineralization not classified. However, the presence of graphite may indicate that the mineralization is a clastic sediment type sulphide deposition.

REFERENCES:

Assessment Files 91384, 92698
Manitoba Energy and Mines, Minerals Division.

Gilbert, H.P., Syme, E.C. and Zwanzig, H.V.
1980: Geology of the metavolcanic and volcaniclastic metasedimentary rocks in the Lynn Lake area; Manitoba Energy and Mines, Mineral Resources Division, Geological Paper GP 80-1, 118 p.

Milligan, G.C.
1960: Geology of the Lynn Lake District; Manitoba Department of Mines and Natural Resources, Mines Branch, Publication 57-1, 317 p.

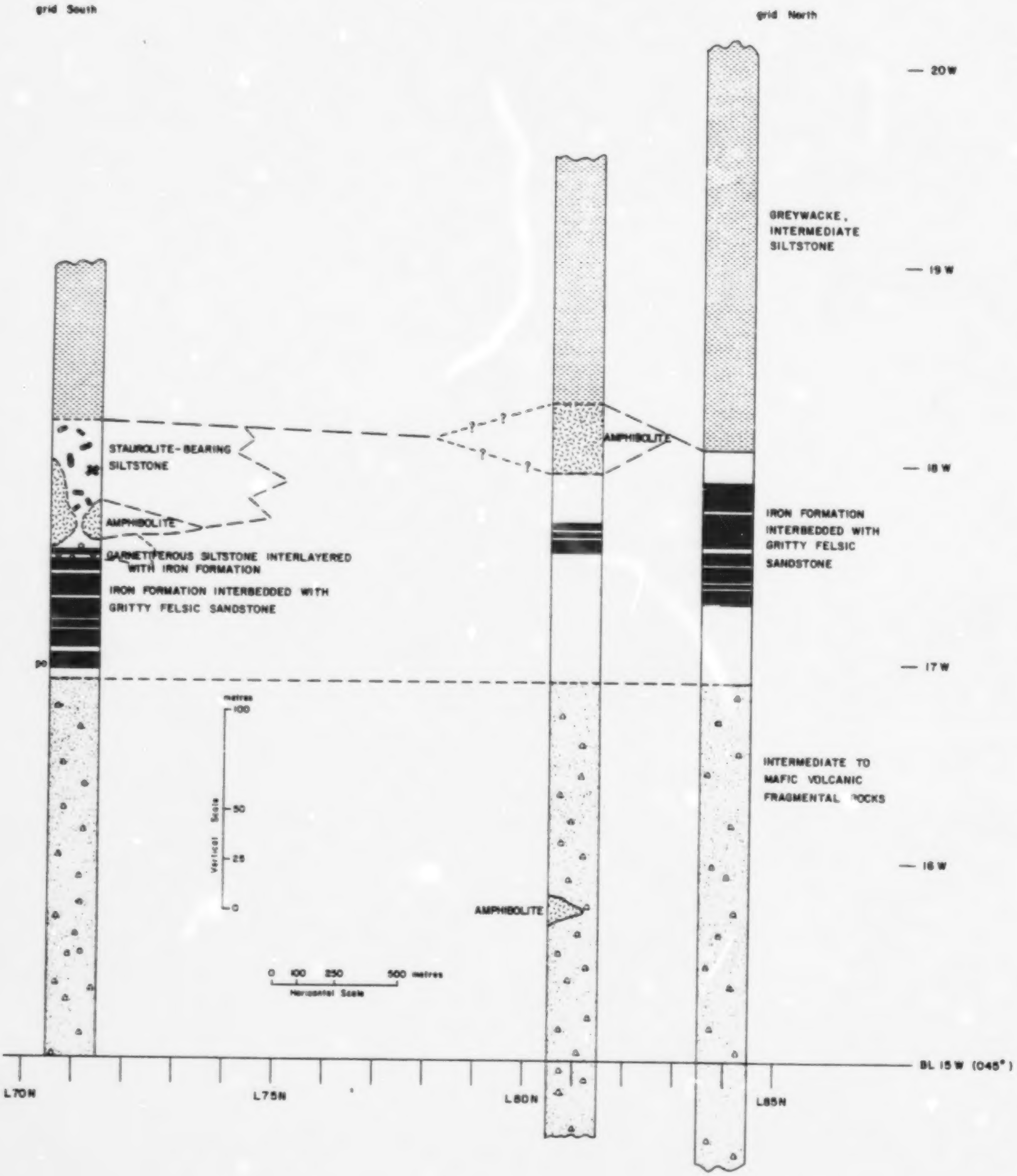

grid South
grid North
20 W
19 W
18 W
17 W
16 W
BL 15 W (045°)
L70N
L75N
L80N
L85N
GREYWACKE, INTERMEDIATE SILTSTONE
STAUROLITE-BEARING SILTSTONE
AMPHIBOLITE
GARNETIFEROUS SILTSTONE INTERLAYERED WITH IRON FORMATION
IRON FORMATION INTERBEDDED WITH GRITTY FELSIC SANDSTONE
po
?
AMPHIBOLITE
IRON FORMATION INTERBEDDED WITH GRITTY FELSIC SANDSTONE
INTERMEDIATE TO MAFIC VOLCANIC FRAGMENTAL ROCKS
AMPHIBOLITE
metres
100
50
25
0
Vertical Scale
0
100
250
500 metres
Horizontal Scale

Figure 42-1: Stratigraphic sections and correlation of geology in the area of mineral localities 42 and 46.

LOCATION: 42

NAME:

UTM: 6309296N 376111E

ACCESS: Via Hwy. 394 north from Lynn Lake to boat landing at Burge Lake; boat to northwest shore of Burge Lake.

AREA: Northwest shore of Burge Lake.

AIRPHOTO: A14889-169

EXPLORATION SUMMARY:

The ground was originally staked in 1946 and geological mapping was done in 1948 by Sherritt Gordon Mines Ltd. (A.F. 91367; Milligan, 1960). The ground was restaked several times but no further work was recorded. In 1977 Granges Exploration Ltd. drilled one diamond drill hole (A.F. 92698). The ground is presently held by Manitoba Mineral Resources Ltd.

GEOLOGICAL SETTING:

The area is underlain by Wasekwan Group metavolcanic and metasedimentary rocks that were intruded by quartz diorite (Gilbert *et al.*, 1980). The metavolcanic and metasedimentary rocks form a northeast striking, northwest facing, sequence comprising mafic to intermediate volcanic fragmental rocks, interbedded iron formation and gritty metasedimentary rocks, amphibolite and metagreywacke (Fig. 41-1, 42-1; Ferreira, 1987).

MINERALIZATION:

The mineralization encountered in the drill hole consists of three zones of disseminated pyrite in altered amphibolite intruded by granitic rock. The pyritic zones are 21, 30 and 30 cm thick (A.F. 92698).

GEOCHEMICAL DATA:

Assay values from the mineralized intersections are: Au - 0.03 g/tonne; Ag - 0.03 to 1.2 g/tonne; Cu - 0.02 to 0.15%; Zn - 0.01 to 0.05%.

CLASSIFICATION:

Disseminated sulphide mineralization not classified.

REFERENCES:

Assessment Files 91367, 92698

Manitoba Energy and Mines, Minerals Division.

Ferreira, K.

1987: Geological investigations at Burge Lake, Lynn Lake greenstone belt; in Manitoba Energy and Mines, Minerals Division, Report of Field Activities 1987, p. 17-20.

Gilbert, H.P., Syme, E.C. and Zwanzig, H.V.

1980: Geology of the metavolcanic and volcaniclastic metasedimentary rocks in the Lynn Lake area; Manitoba Energy and Mines, Mineral Resources Division, Geological Paper GP 80-1, 118 p.

Milligan, G.C.

1960: Geology of the Lynn Lake District, Manitoba; Manitoba Department of Mines and Natural Resources, Mines Branch, Publication 57-1; 317 p.

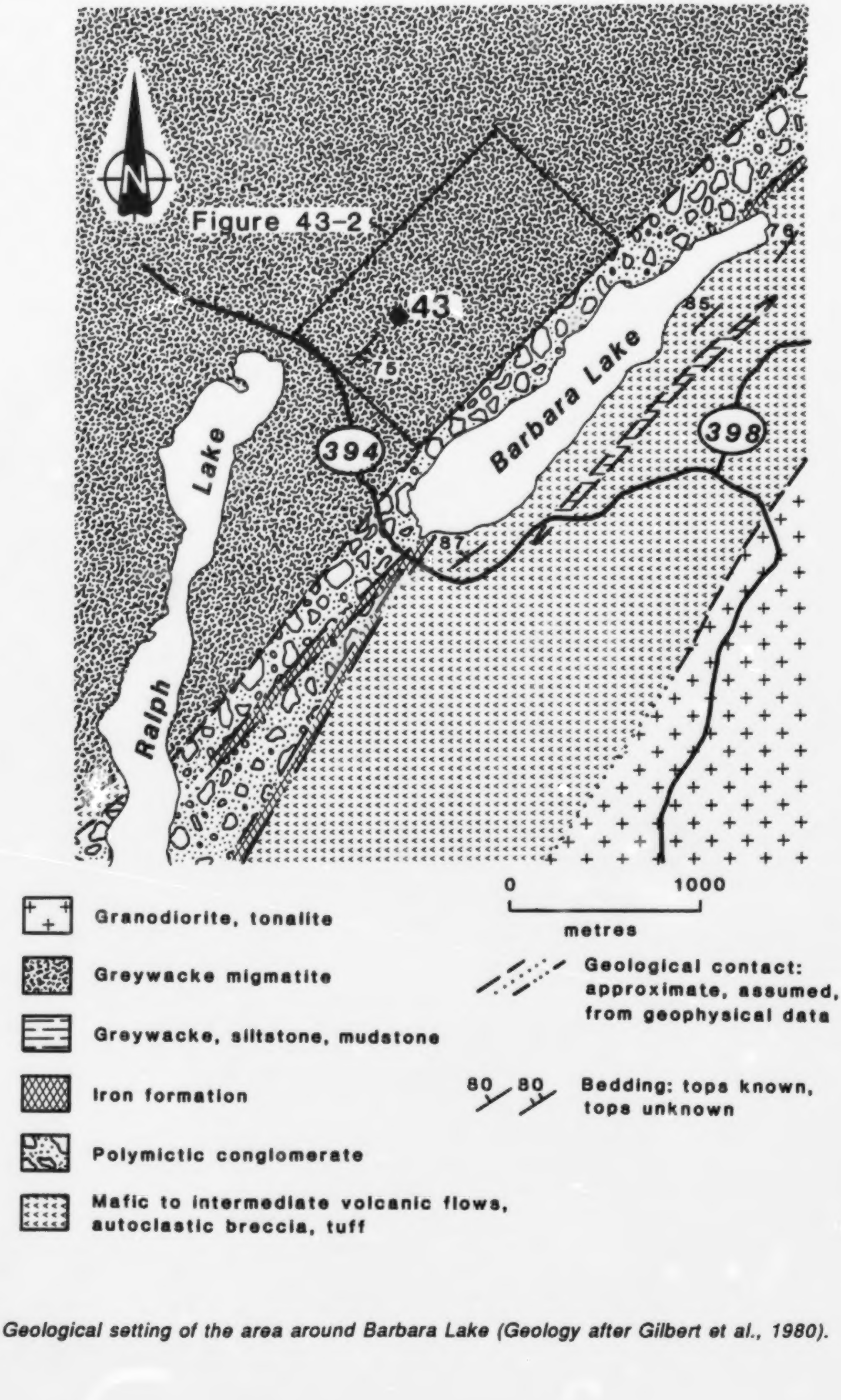

N
Figure 43-2
43
75
394
398
Ralph
Lake
Barbara Lake
76
85
87
0
1000
metres
Granodiorite, tonalite
Greywacke migmatite
Greywacke, siltstone, mudstone
Iron formation
Polymictic conglomerate
Mafic to intermediate volcanic flows, autoclastic breccia, tuff
Geological contact: approximate, assumed, from geophysical data
80 80
Bedding: tops known, tops unknown

Figure 43-1: Geological setting of the area around Barbara Lake (Geology after Gilbert et al., 1980).

LOCATION: 43

NAME:

UTM: 6307785N 372606E

ACCESS: Via Hwy. 394 north from Lynn Lake to access road to Ralph Lake and traverse.

AREA: Northwest shore of Barbara Lake.

AIRPHOTO: A14839-169

EXPLORATION SUMMARY:

The ground was staked in 1947 and a magnetometer survey and geological mapping were conducted (Milligan, 1960). No further work was done on the property until 1978 and 1980 when Granges Exploration Ltd., conducted an EM survey and diamond drilling (A.F. 92478, 92480).

GEOLOGICAL SETTING:

The area is underlain by biotitic metagreywacke that locally is garnet-bearing and is probably part of the Wasekwan Group (Gilbert *et al.*, 1980). Polymictic metaconglomerate occurs along the northwest shore of Barbara Lake (Fig. 43-1).

MINERALIZATION:

The occurrence consists of six electromagnetically conductive mineralized zones (Fig. 43-2). Zone A (SL-10) is 1.06 m thick and consists of narrow layers of disseminated pyrrhotite in silicified metagreywacke. Zone B (SL-1) consists of five distinct, drill intersected, mineralized layers in quartz-biotite schist (metagreywacke). The layers range in width from 10 cm to 4 m. Mineralization in two layers is as narrow stringers of pyrrhotite that make up about 15% of the rock, whereas, the other three consist of 10 to 20% disseminated pyrrhotite with or without graphite. Zone C (SL-2) consists of 7.2 m of disseminated pyrite and pyrrhotite in greywacke that contains alternating mineralized and non-mineralized layers of greywacke, 0.6 to 2.7 m thick. Sulphide abundance ranges from a few grains to 12%. Zone D (SL-13) is a 0.7 m drill core intersection in greywacke. It contains pyrrhotite stringers that compose 10 to 15% of the rock. Zone E (SL-11) consists of three different and separate mineralized intersections in drill core. One of these is 1.5 m of stringer pyrite and pyrrhotite that make up 10% of the rock. Another consists of 5 cm of minor disseminated pyrite and pyrrhotite and the third is a 10.2 m drill core intersection of graphite on fracture surfaces in greywacke. Zone F (SL-3) mineralization consists of two separate, 12 cm thick, layers of graphite that contain some pyrrhotite, in addition to three separate, 0.5 to 2.2 m thick, mineralized greywacke layers in which stringer pyrite and pyrrhotite compose 8% to 10% of the rock.

GEOCHEMICAL DATA:

The following assay data are from drill logs contained in assessment files 92478 and 92480

Zone	Assay width (m)	Au	Ag g/t	Cu% g/t	Zn%
A	1.06	0.05	1.0	-	0.01
B	1.8	0.05	1.0	0.02	0.01
	0.64	0.05	0.5	0.02	0.01
	4.0	0.05	0.5	0.02	0.01
	0.48	0.05	1.0	0.02	0.01
C	0.76	0.05	1.5	-	0.02
	0.60	0.05	0.5	-	0.02
	2.7	0.05	1.0	0.01	0.02
	0.76	0.05	0.5	-	0.03
D	0.7	0.05	0.5	-	0.02
E	1.5	0.05	1.5	0.01	0.02
F	0.4	0.05	0.5	0.01	0.01
	0.3	0.05	0.5	0.02	0.01
	0.8	0.05	0.5	0.02	0.02
	2.0	0.05	0.5	0.02	0.01
	0.5	0.05	1.0	0.02	0.02

CLASSIFICATION:

Although both disseminated and stringer type mineralization are present, disseminated mineralization is more abundant. Thus the occurrence is considered to be disseminated mineralization not classified. The presence of graphite may indicate a sedimentary origin for the disseminated mineralization.

REFERENCES:

Assessment File 92478, 92480
Manitoba Energy and Mines, Minerals Division.

Gilbert, H.P., Syme, E.C. and Zwanzig, H.V.
1980: Geology of the metavolcanic and volcaniclastic metasedimentary rocks in the Lynn Lake area; Manitoba Energy and Mines, Mineral Resources Division, Geological Paper GP 80-1, 118 p.

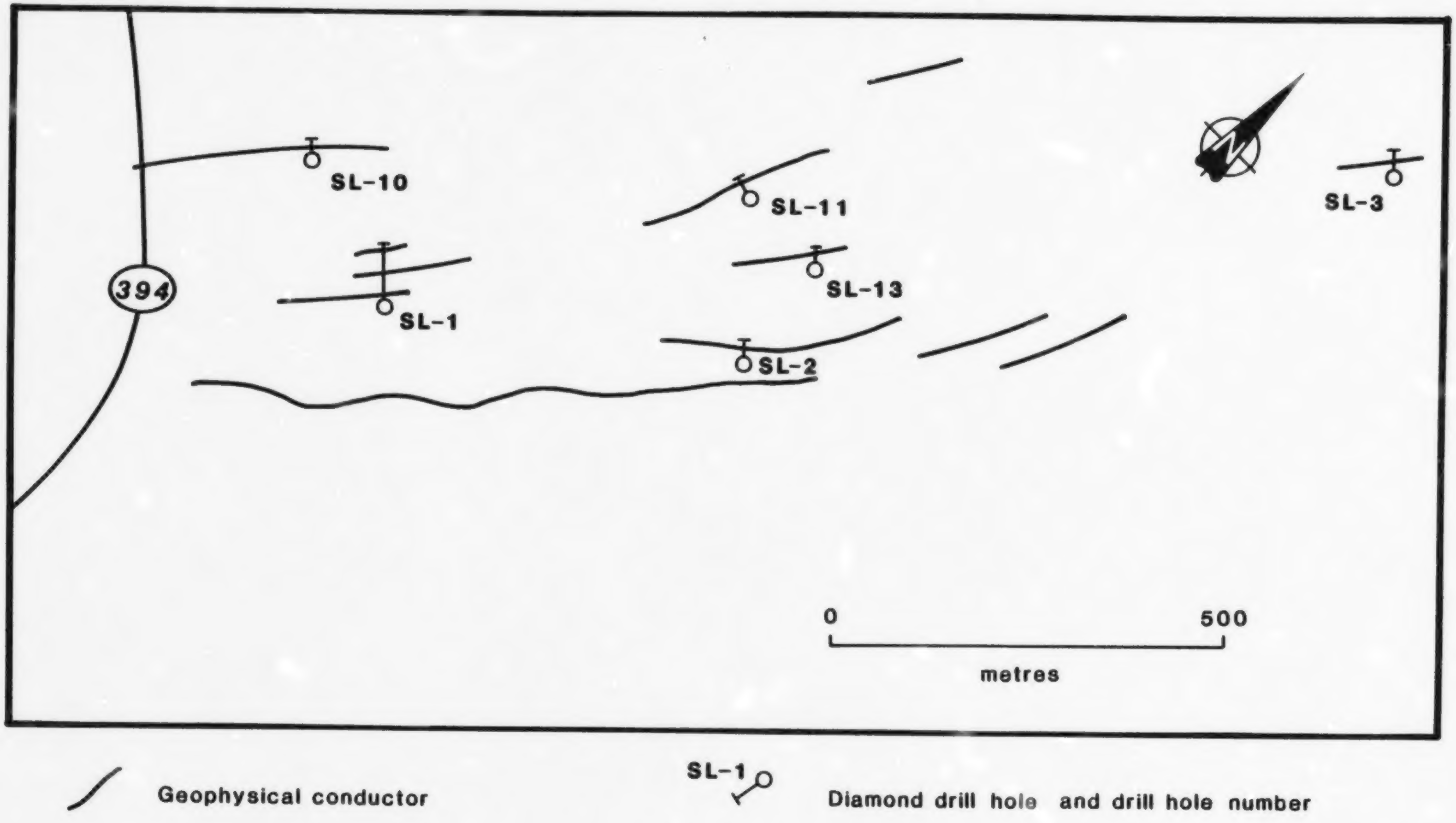

394
SL-10
SL-1
SL-11
SL-13
SL-2
SL-3
0
500
metres
Geophysical conductor
SL-1
Diamond drill hole and drill hole number

Figure 43-2: Plot of drill holes and geophysical conductors at mineral locality 43.

LOCATION: 44

NAME:

UTM: 6309685N 375339E

ACCESS: Via Hwy. 394 to boat landing at Burge Lake, boat to northwest shore of lake and traverse.

AREA: Northwest of northwest shore, Burge Lake.

AIRPHOTO: A14889-169

EXPLORATION SUMMARY:

Since 1946 the ground has had an active history of staking but limited exploration work. In 1947 magnetometer and geological surveys were carried out for International Mining Corporation (Canada) Ltd. and Hoodoo Lake Mines Ltd. In 1969 Tri-J Minerals Surveys Ltd. conducted magnetometer and EM surveys and seven DDH were drilled by Bet Mineral Enterprises as a result of these surveys (A.F. 91477, 91382, Fig. 41-1). No further exploration work on the property has been recorded. The ground is presently held by Manitoba Mineral Resources Ltd.

GEOLOGICAL SETTING:

The area is underlain by metagreywacke and metaconglomerate (Fig. 41-1, 42-1). The metaconglomerate occurs only at the southeast boundary of the property. The metagreywacke is biotite and/or hornblende-bearing and locally garnetiferous (Ferreira, 1987; Gilbert et.al., 1980). The metaconglomerate contains sedimentary, volcanic and granitic clasts in a hornblende-bearing greywacke matrix (Gilbert *et al.*, 1980).

MINERALIZATION:

The drill indicated mineralization consists of 0.9 to 4 m intersections of stringer pyrite and pyrrhotite; the sulphide stringers compose 10 to 30% of the rock. The host rocks appear to be silicified greywacke. Alteration comprises quartz-carbonate stringers, sericite and minor chlorite. In addition to this type of mineralization, mineralized zones of less than 30 cm wide (consisting of stringer pyrite and pyrrhotite, blebs of pyrite and pyrrhotite in quartz stringers and disseminated pyrite and pyrrhotite on foliation surfaces), are common over drill core lengths of up to 150 m (A.F. 91477).

GEOCHEMICAL DATA:

No public information.

CLASSIFICATION:

Stockwork vein type mineralization. The mineralization may have been originally clastic sedimentary and its present nature is metamorphic mobilizate.

REFERENCES:

Assessment Files 91382, 91477
Manitoba Energy and Mines, Minerals Division.

Ferreira, K.
1987: Geological investigations at Burge Lake, Lynn Lake greenstone belt; in Manitoba Energy and Mines, Minerals Division, Report of Field Activities 1987, p. 17-20.

Gilbert, H.P., Syme, E.C. and Zwanzig, H.V.
1980: Geology of the metavolcanic and volcaniclastic metasedimentary rocks in the Lynn Lake area; Manitoba Energy and Mines, Mineral Resources Division, Geological Paper GP 80-1, 118 p.

Milligan, G.C.
1960: Geology of the Lynn Lake district, Manitoba; Manitoba Department of Mines and Natural Resources, Mines Branch, Publication 57-1, 317 p.

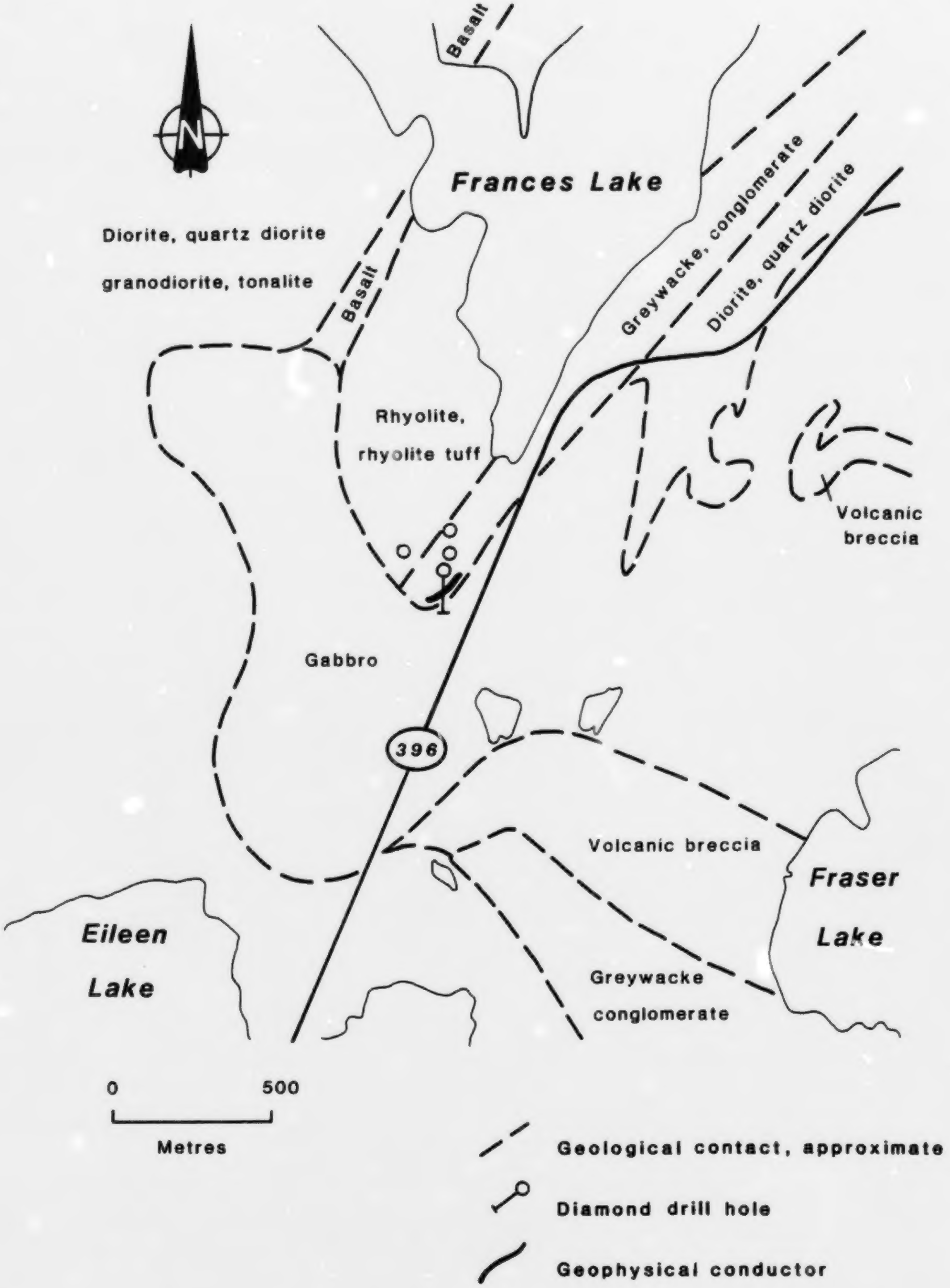

Basalt
Frances Lake
Diorite, quartz diorite
granodiorite, tonalite
Basalt
Greywacke, conglomerate
Diorite, quartz diorite
Rhyolite,
rhyolite tuff
Volcanic
breccia
Gabbro
396
Volcanic breccia
Fraser
Lake
Eileen
Lake
Greywacke
conglomerate
0
500
Metres
Geological contact, approximate
Diamond drill hole
Geophysical conductor

Figure 45-1: Geological setting of the area around the south part of Frances Lake and drill hole locations for mineral locality 45 (Geology simplified from Emslie and Moore, 1961; Gilbert et al., 1980).

LOCATION: 45

NAME:

UTM: 6295838N 369643E

ACCESS: Via Hwy. 396 from Lynn Lake to south end of Frances Lake.

AREA: South end of Frances Lake.

AIRPHOTO: A24299-47

EXPLORATION SUMMARY:

In 1958 and 1959 Sherritt Gordon Mines Ltd. conducted a geophysical survey and drilled four diamond drill holes. A geophysical survey was performed in 1978 and one diamond drill hole was drilled by Sherritt Gordon Mines Ltd., in joint venture with St. Joseph Exploration, to re-evaluate an anomalous gold assay reported in the drill log one of the earlier drill holes (Fig. 45-1).

GEOLOGICAL SETTING:

The area is largely underlain by the Fraser Lake Gabbro (Milligan, 1960; Emslie and Moore, 1961). The gabbro intruded and contains large included blocks of Wasekwan Group metavolcanic rocks (Emslie and Moore, 1961). The mineral occurrence is hosted by mafic to intermediate volcanic rocks, minor felsic volcanic rocks and paragneiss, (A.F. 92395). The host rocks are probably an included block of supracrustal rocks in the gabbro.

MINERALIZATION:

Mineralization consists of a 5.5 m wide drill intersection of minor to moderate (3 to 40%) pyrrhotite and minor pyrite and chalcopyrite in mafic tuff. The sulphide occurs as disseminations and stringers that appear to be fracture fillings (A.F. 92395). Graphite coatings occur on fractures that are probably minor faults.

GEOCHEMICAL DATA:

In reported assays (A.F. 92395 and pers. comm. Sherritt Gordon Mines Ltd., 1983) Ni values range from trace to 0.06%, Cu from trace to 0.11% and Zn from trace to 0.07%. In diamond drill core DON 4 (Fig. 45-1) a 5 cm wide stringer of pyrrhotite returned an Au assay of 21 g/tonne. Trace Au was detected in assays from diamond drill core Don 1 (Fig. 45-1). Samples from diamond drill core JO29 did not confirm the presence of Au at the occurrence.

CLASSIFICATION:

Disseminated mineralization not classified. It is possible that this mineralization is the distal component of a stratabound massive sulphide type deposit.

REFERENCES:

Assessment File 92395

Manitoba Energy and Mines, Minerals Division

Emslie, R.F. and Moore, J.M. Jr.

1961: Geological studies of the area between Lynn Lake and Fraser Lake; Manitoba Department of Mines and Natural Resources, Mines Branch, Publication 59-4, 76 p.

Milligan, G.C.

1960: Geology of the Lynn Lake district, Manitoba; Manitoba Department of Mines and Natural Resources, Mines Branch, Publication 57-1, 317 p.

LOCATION: 46

NAME:

UTM: 6310583N 376389E

ACCESS: Via Hwy. 394 to boat landing at Burge Lake and boat to northwest shore of Burge Lake where creek from Stick Lake drains into Burge Lake.

AREA: Southwest of Stick Lake.

AIRPHOTO: A14889-169

EXPLORATION SUMMARY:

The ground has had an active staking history since 1946. In 1947 geological surveys were carried out by International Mining Corporation (Canada) Ltd. and Hoodoo Lake Mines Ltd. (AF19367, 19383, 19384; Milligan, 1960). No further exploration work has been reported. The ground is presently held by Manitoba Mineral Resources Ltd.

GEOLOGICAL SETTING:

The area is underlain by a northeast striking, northwest dipping sequence of metavolcanic and metasedimentary rock (Fig. 41-1; Gilbert *et al.*, 1980). From southeast to northwest the stratigraphic sequence includes volcanic fragmental rocks, amphibolite, iron-formation, gritty sandstone and greywacke (Ferreira, 1987; Fig. 41-1). Details of the stratigraphy are presented in Figure 42-1. Close to the shore of Burge Lake the sequence is intruded by quartz diorite (Milligan, 1960; Gilbert *et al.*, 1980).

MINERALIZATION:

Numerous layers of oxide facies iron formation are interbedded with gritty felsic sandstone in a 115 m thick succession (Ferreira, 1987). Iron formation layers are composed of fine grained magnetite and quartz; they range in thickness from 5 cm to 5 m, but are generally less than 1 m thick. These layers display thin bedded to laminated internal stratification, characterized by variable proportions of magnetite and quartz.

GEOCHEMICAL DATA:

During the 1987 field season 43 samples of iron formation and associated gritty sandstone were collected and analyzed for Au. All analyses yielded less than 12 ppb.

CLASSIFICATION:

Chemical sediment type mineralization; oxide facies iron-formation.

REFERENCES:

Assessment Files 19367, 19383, 19384
Manitoba Energy and Mines, Minerals Division.

Ferreira, K.
1987: Geological investigations at Burge Lake, Lynn Lake greenstone belt; in Manitoba Energy and Mines, Minerals Division, Report of Field Activities 1987, p. 17-20.

Gilbert, H.P., Syme, E.C. and Zwanzig, H.V.
1980: Geology of the metavolcanic and volcaniclastic metasedimentary rocks in the Lynn Lake area; Manitoba Energy and Mines, Mineral Resources Division, Geological Paper GP80-1, 118 p.

Milligan, G.C.
1960: Geology of the Lynn Lake district, Manitoba; Manitoba Department of Mines and Natural Resources, Mines Branch, Publication 57-1, 317 p.

LOCATION: 47

NAME:

UTM: 6295249N 374709E

ACCESS: Boat from Manitoba Energy and Mines expediting base at Eldon Lake to south end of lake and traverse.

AREA: 1.5 km west from south end of Eldon Lake.

AIRPHOTO: A24297-3

EXPLORATION SUMMARY:

The ground was originally staked in 1945 by Sherritt Gordon Mines Ltd. as part of the Elb group of leased claims. Several magnetic and EM surveys, and geological mapping programs, have been carried out in the area of the occurrence. Three drill holes have been drilled by Sherritt Gordon Mines Ltd. The ground is presently held by LynnGold Resources Inc.

GEOLOGICAL SETTING:

The area is underlain by a Wasekwan Group metasedimentary sequence that has been folded to form a synformal structure (Fig. 47-1; Gilbert *et al.*, 1980). To the south and west the metasedimentary rocks are structurally underlain by mafic metavolcanic rocks. On the east and west the metasedimentary rocks have been intruded by granitic plutonic rocks (Gilbert *et al.*, 1980). Diamond drill hole logs indicate that, in the area of the mineralization, felsic tuff is interlayered with argillite and graphitic argillite; lithologic layers are 0.6 to 1.8 m thick. The felsic tuff and argillite probably correspond to siltstone and mudstone mapped by Gilbert *et al.* (1980).

MINERALIZATION:

In the diamond drill holes, 6 to 9 m long sections of interlayered metasedimentary rocks contain disseminated (2 to 17%) pyrrhotite, pyrite and minor chalcopyrite, and stringers of pyrrhotite and pyrite. The highest concentration of sulphide minerals occurs in graphitic argillite layers.

GEOCHEMICAL DATA:

Reported assay values from the drill logs are as follows:

Cu - nil to 0.12%
Zn - nil to 0.3%
Ni - nil to 0.09%
Ag - 0.04 to 9 g/t
Au - not reported

CLASSIFICATION:

Disseminated mineralization not classified. The spatial association of sulphide and graphite indicate that the mineralization could be of the clastic sediment type.

REFERENCES:

Gilbert, H.P., Syme, E.C. and Zwanzig, H.V.

1980: Geology of the metavolcanic and volcaniclastic metasedimentary rocks in the Lynn Lake area; Manitoba Energy and Mines, Mineral Resources Division, Geological Paper GP 80-1, 118 p.

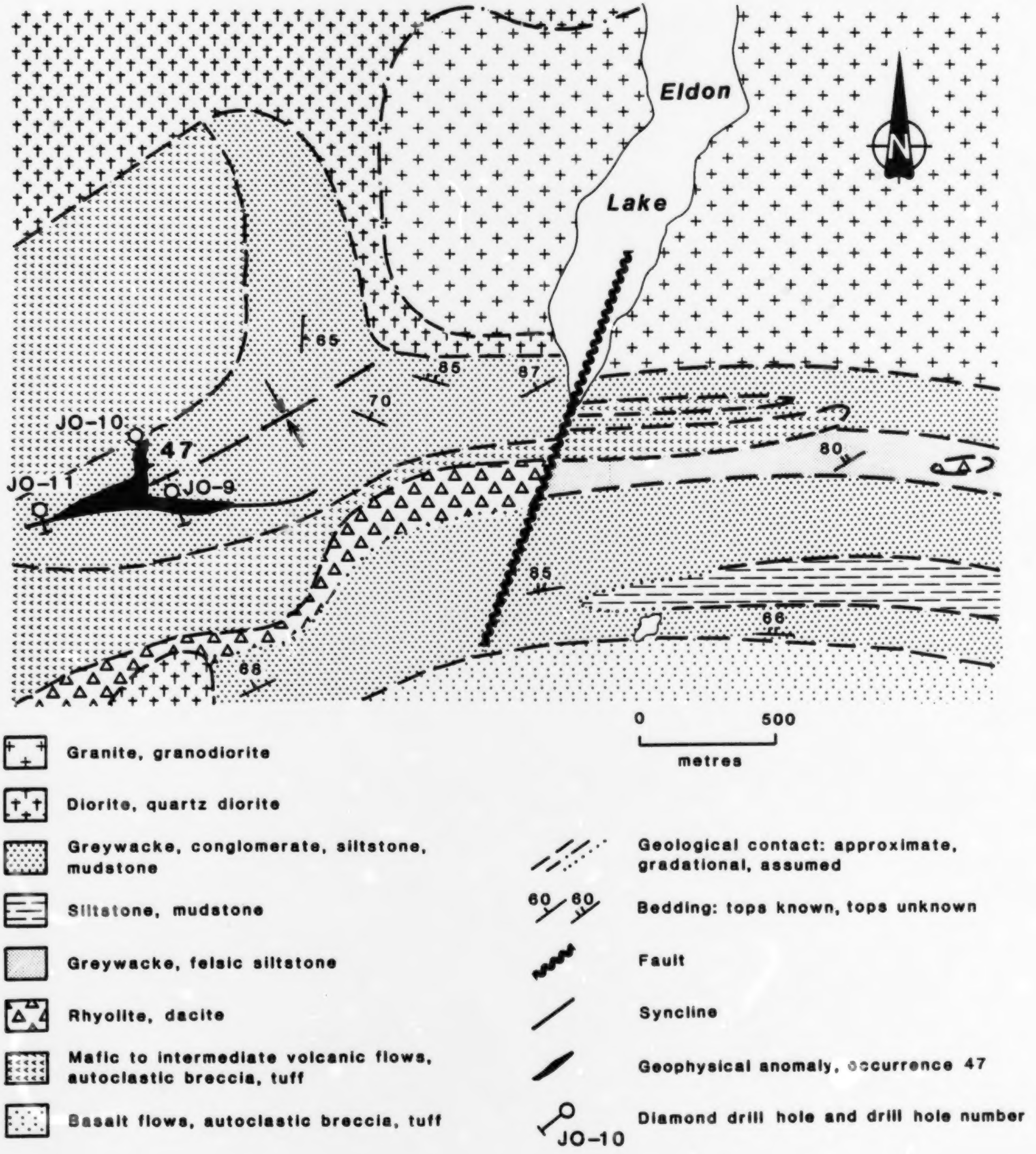

Eldon
Lake
N
JO-10
47
JO-11
JO-9
65
85
87
70
80
85
66
66
0
500
metres
Granite, granodiorite
Diorite, quartz diorite
Greywacke, conglomerate, siltstone, mudstone
Siltstone, mudstone
Greywacke, felsic siltstone
Rhyolite, dacite
Mafic to intermediate volcanic flows, autoclastic breccia, tuff
Basalt flows, autoclastic breccia, tuff
Geological contact: approximate, gradational, assumed
60
60
Bedding: tops known, tops unknown
Fault
Syncline
Geophysical anomaly, occurrence 47
JO-10
Diamond drill hole and drill hole number

Figure 47-1: Geological setting of the area west and southwest of the south end of Eldon Lake and drill hole locations for mineral locality 47 (Geology after Gilbert et al., 1980).

LOCATION: 48

NAME:
UTM: 6293999N 373737E
ACCESS: 1 km traverse from CNR rail line.

AREA: 1.5 km west from south end of Eldon Lake.
AIRPHOTO: A24297-3

EXPLORATION SUMMARY:

Magnetic and EM geophysical surveys and three diamond drill holes by Sherritt Gordon Mines Ltd. in 1977 and 1978.

GEOLOGICAL SETTING:

The area is underlain by Wasekwan Group (Milligan, 1960), rhyolite flows and tuff with minor intercalated mafic tuff (Gilbert *et al.*, 1980). To the north the felsic volcanic rocks are in contact with an interlayered sequence of mafic volcanic flows, flow breccia and tuff; to the south a quartz diorite body is intruded at the contact between the felsic volcanic rocks and a sedimentary sequence (Fig. 48-1). The mineralization occurs close to the contact between the felsic and mafic volcanic rocks.

MINERALIZATION:

The mineralization as reported in diamond drill logs (pers. comm. Sherritt Gordon Mines Ltd., 1985) consists of a 0.5 to 1.0 m thick layer of solid pyrrhotite associated with a quartz vein. However, the quartz vein occurs only on one side of the solid sulphide layer and thus it is probably a chert layer. Geophysical data, the consistency in the rock types, and the thickness and nature of the sulphide and chert layers indicate that the sulphide layer has a minimum lateral extent of 1.6 km (Fig. 48-1).

GEOCHEMICAL DATA:

Assays of drill core from the solid sulphide layer are summarized below:

Cu - nil to 0.1%
Zn - nil to 0.2%
Ni - 0.04 to 0.07%
Au - not reported
Ag - not reported

CLASSIFICATION:

Volcanic rock-associated stratabound massive sulphide type mineralization.

REFERENCES:

Gilbert, H.P., Syme, E.C. and Zwanzig, H.V.
1980: Geology of the metavolcanic and volcaniclastic metasedimentary rocks in the Lynn Lake area; Manitoba Energy and Mines, Mineral Resources Division, Geological Paper GP80-1, 118 p.

Milligan, G.C.
1960: Geology of the Lynn Lake district, Manitoba; Manitoba Department of Mines and Natural Resources, Mines Branch, Publication 57-1; 317 p.

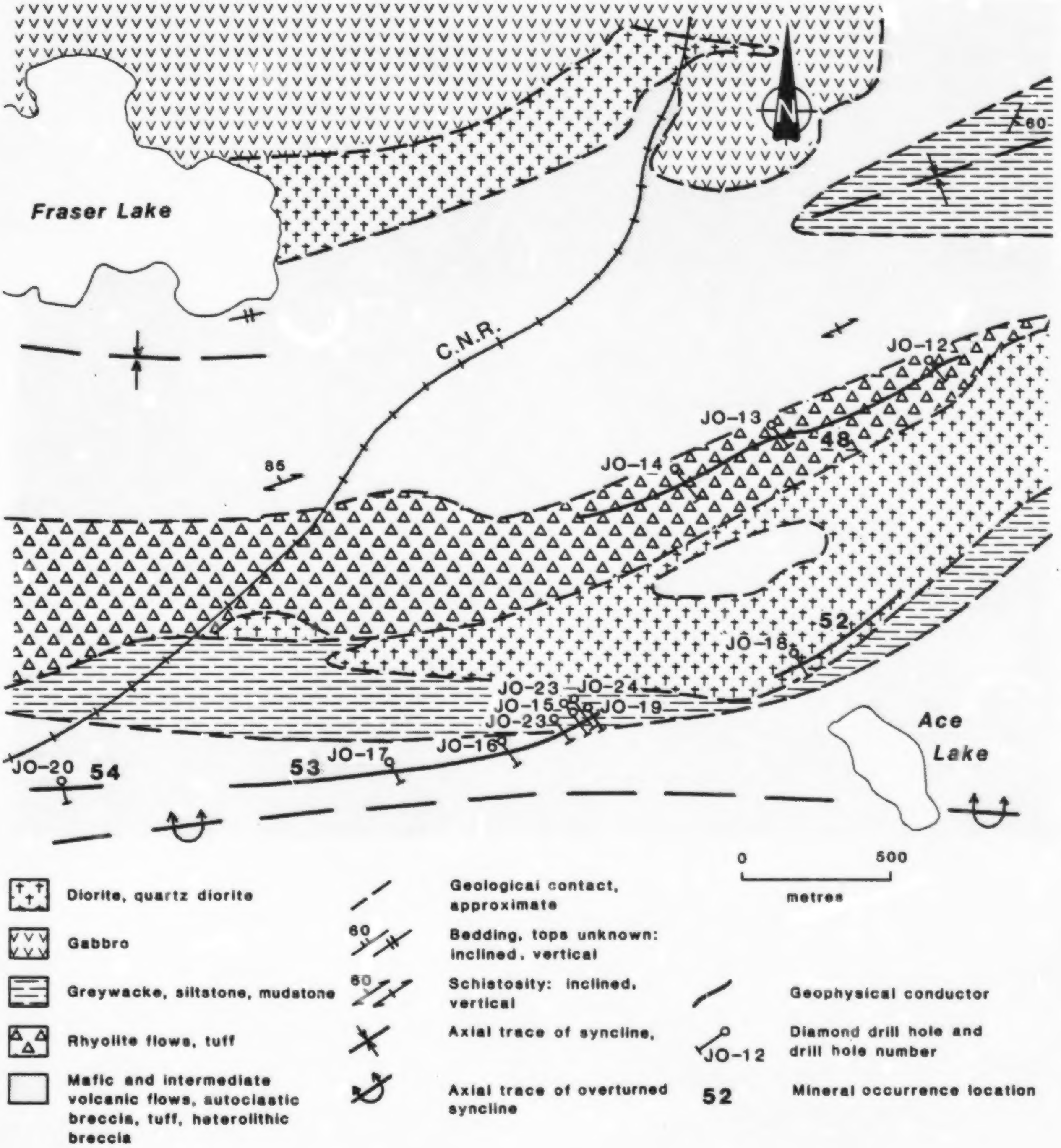

N
Fraser Lake
60
C.N.R.
85
JO-12
JO-13
48
JO-14
52
JO-18
JO-23
JO-24
JO-15
JO-19
JO-23
JO-16
JO-17
53
JO-20
54
Ace Lake
0
500
metres
Diorite, quartz diorite
Gabbro
Greywacke, siltstone, mudstone
Rhyolite flows, tuff
Mafic and intermediate volcanic flows, autoclastic breccia, tuff, heterolithic breccia
Geological contact, approximate
60
Bedding, tops unknown: inclined, vertical
60
Schistosity: inclined, vertical
Axial trace of syncline,
Axial trace of overturned syncline
Geophysical conductor
JO-12
Diamond drill hole and drill hole number
52
Mineral occurrence location

Figure 48-1: Geological setting and drill hole locations for mineral occurrences south and southeast of Fraser Lake (Geology after Gilbert et al., 1980).

LOCATION: 49

NAME:

UTM: 6295649N 375104E

ACCESS: Via boat from Manitoba Energy and Mines expediting base at Eldon Lake to south end of lake and a 1.0 km traverse.

AREA: 1.0 km west from south end of Eldon Lake.

AIRPHOTO: A24142-175

EXPLORATION SUMMARY:

The ground was originally staked by Sherritt Gordon Mines Ltd. as part of the Elb group of leased claims in 1945. Since then there have been several magnetic, EM and geological surveys conducted in the area. The most recent work included an EM survey in 1977 and one DDH in 1978 (pers. comm. Sherritt Gordon Mines Ltd., 1985).

GEOLOGICAL SETTING:

The area is underlain by an interlayered sequence of Wasekwan Group greywacke, siltstone and mudstone that occurs on the northwest limb of a synformal structure in the metasedimentary rocks (Gilbert *et al.*, 1980). To the west the metasedimentary rocks are in contact with Wasekwan Group mafic metavolcanic rocks and to the east they were intruded by a pre-Sickle Group diorite, quartz diorite, granodiorite and granite plutonic complex (Fig. 49-1).

MINERALIZATION:

The mineralization consists of a 20 m long drill hole intersection of interlayered metasedimentary rocks that contain 4 to 10% disseminated pyrrhotite and pyrite with minor graphite on foliation planes. Within this mineralized section there is a 30 cm thick layer that consists of 45 to 55% disseminated pyrite and pyrrhotite.

GEOCHEMICAL DATA:

Assays from diamond drill core yielded nil for Cu, Zn and Au. Ag values range from nil to 13.6 g/tonne.

CLASSIFICATION:

Sulphide facies iron formation. Because of the fold structure, mineralogy and nature of the mineralization, the mineralization at this location could be laterally and stratigraphically equivalent to the mineralization at both, or either of, localities 14 and 47.

REFERENCES:

Gilbert, H.P., Syme, E.C. and Zwanzig, H.V.

1980: Geology of the metavolcanic and volcaniclastic metasedimentary rocks in the Lynn Lake area; Manitoba Energy and Mines, Mineral Resources Division, Geological Paper GP80-1, 118 p.

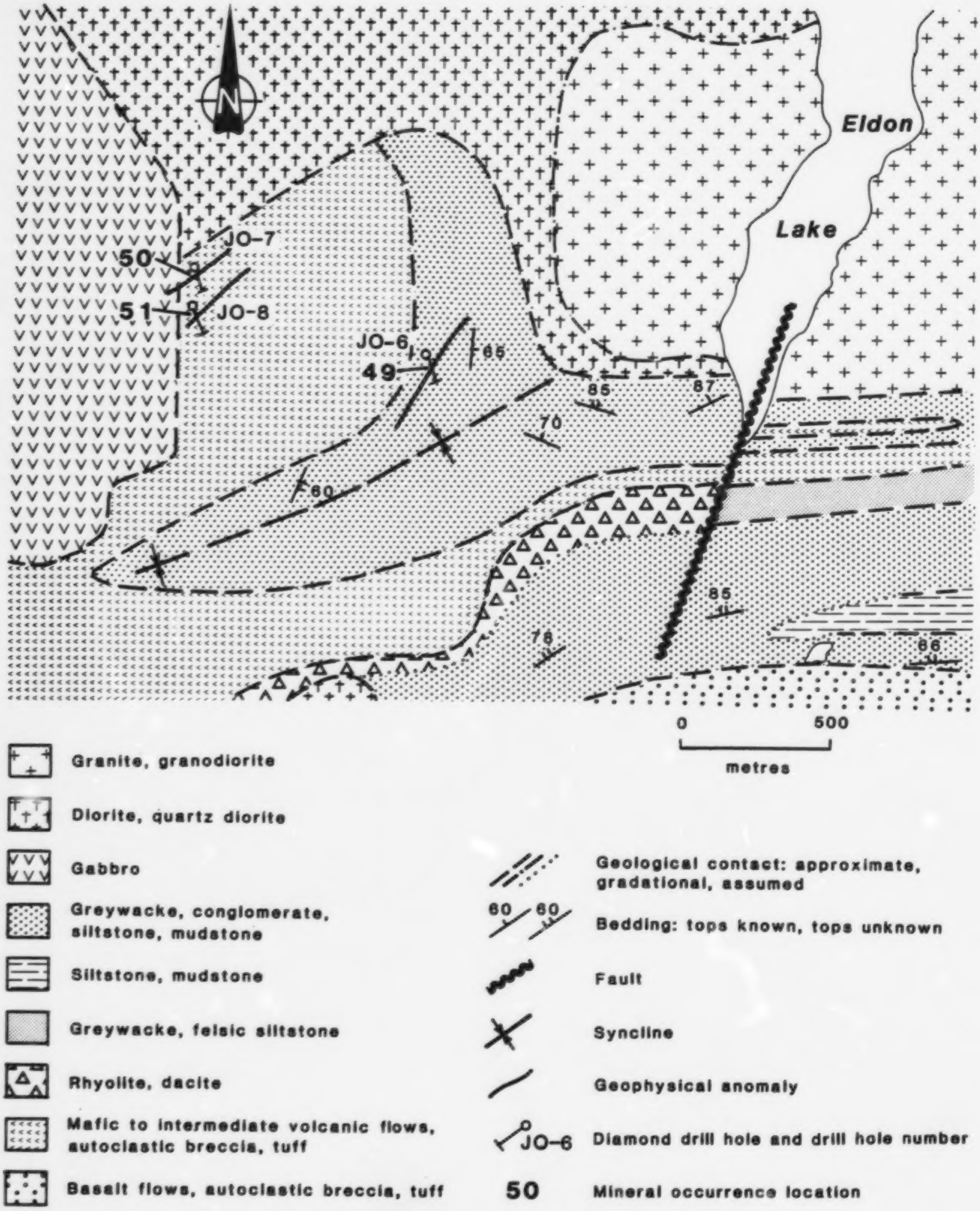

N
Eldon
Lake
JO-7
50
51
JO-8
JO-6
49
65
85
87
70
60
85
78
66
0
500
metres
Granite, granodiorite
Diorite, quartz diorite
Gabbro
Greywacke, conglomerate, siltstone, mudstone
Siltstone, mudstone
Greywacke, felsic siltstone
Rhyolite, dacite
Mafic to intermediate volcanic flows, autoclastic breccia, tuff
Basalt flows, autoclastic breccia, tuff
Geological contact: approximate, gradational, assumed
60 60
Bedding: tops known, tops unknown
Fault
Syncline
Geophysical anomaly
JO-6
Diamond drill hole and drill hole number
50
Mineral occurrence location

Figure 49-1: Geological setting and drill hole locations for mineral localities 49, 50 and 51 (Geology after Gilbert et. al., 1980).

LOCATION: 50

NAME:

UTM: 6296090N 374105E

ACCESS: Walk south on CNR track from crossing at Hwy. 397 to Muter Creek; follow creek for approximately 1.5 km, or traverse from west shore of Eldon Lake.

EXPLORATION SUMMARY:

The area was originally staked in 1945 by Sherritt Gordon Mines Ltd. as part of the Elb group of leased claims. Since then there have been several magnetic, EM and geological surveys conducted in the area. The most recent work included an EM survey in 1977 and one DDH in 1978 (pers. comm. Sherritt Gordon Mines Ltd., 1985).

GEOLOGICAL SETTING:

The area is underlain by Wasekwan Group mafic volcanic flows, flow breccia, heterolithic breccia and plutonic rocks that include the Fraser Lake gabbro and diorite (Fig. 49-1). The diamond drill hole logs record, interlayered felsic and mafic tuff in addition to the mafic volcanic flows and breccia.

MINERALIZATION:

The mineralization consists of disseminated magnetite in a few of the mafic tuff layers within the interlayered felsic and mafic tuff sequence.

AREA: 2 km west of Eldon Lake on Muter Creek.

AIRPHOTO: A24297-2

GEOCHEMICAL DATA:

None.

CLASSIFICATION:

Disseminated mineralization not classified.

REFERENCES:

Gilbert, H.P., Syme, E.C. and Zwanzig, H.V.

1980: Geology of the metavolcanic and volcaniclastic metasedimentary rocks in the Lynn Lake area; Manitoba Energy and Mines, Mineral Resources Division, Geological Paper GP80-1, 118 p.

LOCATION: 51

NAME:

UTM: 6295856N 374203E

ACCESS: Walk south on CNR track from crossing at Hwy. 397 to Muter Creek; follow creek for approximately 1.5 km, then walk south for 500 m or traverse from west shore of Eldon Lake.

AREA: Approximately 2 km west of Eldon Lake and 500 m south of Muter Creek.

AIRPHOTO: A24297-2

EXPLORATION SUMMARY:

The area was originally staked in 1945 by Sherritt Gordon Mines Ltd. as part of the Elb group of leased claims. Since then there have been several magnetic, EM and geological surveys conducted in the area. The most recent work included an EM survey in 1977 and one DDH in 1978 (pers. comm. Sherritt Gordon Mines Ltd., 1985).

GEOLOGICAL SETTING:

The area is underlain by Wasekwan Group mafic volcanic flows, flow breccia, heterolithic breccia and plutonic rocks that include the Fraser Lake gabbro, diorite, and quartz diorite (Fig. 49-1). In addition to the mafic volcanic rocks the diamond drill hole logs record fine grained metasedimentary rocks and felsic tuff units 18 to 24 m thick interlayered with the mafic volcanic rocks.

MINERALIZATION:

Diamond drill hole logs report three zones of mineralization (pers. comm. Sherritt Gordon Mines Ltd., 1985). From top to bottom of the hole these are: 1) 1.8 m of 1 to 3% disseminated pyrrhotite, magnetite and minor chalcopyrite in impure quartzite within the fine grained metasedimentary unit; 2) a 1.8 m thick layer of impure quartzite in the fine grained metasedimentary unit that contains 1 to 3% disseminated pyrrhotite, magnetite and minor chalcopyrite; and 3) a 6 m section in the felsic tuff unit that contains 2 to 8% pyrrhotite and pyrite as disseminations on foliation planes and as thin stringers.

GEOCHEMICAL DATA:

Assay values, reported in the drill logs, for Cu, Zn and Au are nil. Values for Ag range from nil to 8.7 g/tonne.

CLASSIFICATION:

Disseminated mineralization not classified.

REFERENCES:

Gilbert, H.P., Syme, E.C. and Zwanzig, H.V.

1980: Geology of the metavolcanic and volcaniclastic metasedimentary rocks in the Lynn Lake area; Manitoba Energy and Mines, Mineral Resources Division, Geological Paper GP80-1, 118 p.

LOCATION: 52

NAME:

UTM: 6293104N 373924E

ACCESS: Float plane from Eldon Lake to Franklin Lake and follow trail from Franklin Lake to Ace Lake.

EXPLORATION SUMMARY:

The ground was originally staked in 1939 and 1940 as part of the Ace group on behalf of Sherritt Gordon Mines Ltd. Although extensive exploration was conducted in the area to the south of Ace Lake the only work apparently carried out at the occurrence included an EM survey and one DDH in 1977-78 by Sherritt Gordon Mines Ltd. The ground is presently held by LynnGold Resources Inc.

GEOLOGICAL SETTING:

The area is underlain by mafic tuff, hornblende-bearing and biotite-bearing greywacke, siltstone, mudstone and quartz diorite (Fig. 48-1). The mineralization occurs in a mafic tuff close to the contact with quartz diorite.

MINERALIZATION:

The mineralization consists of pyrrhotite, minor pyrite and rare arsenopyrite in quartz veins and veinlets in mafic tuff (pers. comm. Sherritt Gordon Mines Ltd., 1985). Sulphide content in the veins and veinlets ranges from 1 to 10%. At the vein and veinlet boundaries mafic tuff is altered to chlorite and/or actinolite.

AREA: Approximately 250 m north of Ace Lake.

AIRPHOTO: A24297-4

GEOCHEMICAL DATA:

Metal values from the mineralization are summarized below:

Ni - 0.03 to 0.11%
Cu - nil to 0.04%
Zn - nil to 0.08%
Au - not reported
Ag - not reported

CLASSIFICATION:

Vein type mineralization consisting of multiple veins.

REFERENCES:

Gilbert, H.P., Syme, E.C. and Zwanzig, H.V.
1980: Geology of the metavolcanic and volcaniclastic metasedimentary rocks in the Lynn Lake area; Manitoba Energy and Mines, Mineral Resources Division, Geological Paper GP80-1, 118 p.

LOCATION: 53

NAME:

UTM: 6292739N 372440E

ACCESS: Via float plane from Eldon Lake to Franklin Lake and then traverse, or along CNR tracks from junction with Hwy. 397 and then traverse.

AREA: 1.2 km west of Ace Lake.

AIRPHOTO: A24297-4

EXPLORATION SUMMARY:

The ground was originally staked in 1939 and 1940 as part of the Ace group on behalf of Sherritt Gordon Mines Ltd. and Central Manitoba Mines Ltd. Since that time the area has been covered by several magnetic, EM and geological surveys (pers. comm. Sherritt Gordon Mines Ltd., 1985). The most recent work included an EM survey and seven DDH in 1977-78. The ground is presently held by LynnGold Resources Inc.

GEOLOGICAL SETTING:

The area is underlain by Wasekwan Group mafic tuff and metasedimentary rocks that include conglomerate, hornblende-bearing and biotite-bearing greywacke, siltstone and mudstone (Fig. 48-1). Diamond drill hole logs indicate that minor amounts of felsic tuff are interlayered with mafic tuff (pers. comm. Sherritt Gordon Mines Ltd., 1985).

MINERALIZATION:

Geophysical and diamond drill hole data indicate that the sulphide mineralization has a strike length of 1.36 km (Fig. 48-1). A 1 to 2 m thick zone of disseminated (4 to 10%) pyrite and pyrrhotite in mafic tuff occurs along the length of the geophysical conductor. At the east end of the conductor diamond drilling has outlined a 30 to 60 cm thick layer or lens of solid sulphide that has a minimum lateral extent of 100 m (Fig. 48-1). The solid sulphide consists of pyrite chalcopyrite, sphalerite and pyrrhotite. On the north side of the solid sulphide layer or lens, mafic tuff contains disseminated pyrite and pyrrhotite. On the south side solid sulphide is in contact with a very siliceous felsic tuff (chert?).

GEOCHEMICAL DATA:

No public information.

CLASSIFICATION:

Volcanic rock-associated stratabound massive sulphide mineralization.

REFERENCES:

Gilbert, H.P., Syme, E.C. and Zwanzig, H.V.

1980: Geology of the metavolcanic and volcaniclastic metasedimentary rocks in the Lynn Lake area; Manitoba Energy and Mines, Mineral Resources Division, Geological Paper GP80-1, 118 p.

LOCATION: 54

NAME:

UTM: 6292759N 371233E

ACCESS: Via CNR tracks from junction of track and Hwy. 397.

AREA: 2.5 km west of Ace Lake.

AIRPHOTO: A24299-48

EXPLORATION SUMMARY:

The ground was originally staked in 1939 and 1940 as part of the Ace group on behalf of Sherritt Gordon Mines Ltd. and Central Manitoba Mines Ltd. Since that time the area has been covered by several magnetic, EM and geological surveys (pers. comm. Sherritt Gordon Mines Ltd., 1985). The most recent work included an EM survey and one DDH in 1977-78. The ground is presently held by LynnGold Resources Inc.

GEOLOGICAL SETTING:

There is no outcrop in the immediate vicinity of the occurrence but 500 m to the west and adjacent to the railway tracks (Fig. 48-1), minor amounts of Wasekwan Group felsic tuff and volcanic and sedimentary derived conglomerate are interlayered with mafic volcanic breccia and tuff (Gilbert *et al.*, 1980). The log for the diamond drill hole at the occurrence reports an interlayered sequence of mafic and felsic tuff. Mafic tuff composes 75% of the rock in the sequence and fragments are present in some mafic tuff sections (pers. comm. Sherritt Gordon Mines Ltd., 1985).

MINERALIZATION:

Within mafic tuff there is a 1.8 m section containing stringers of pyrrhotite that transect layering in the tuff.

GEOCHEMICAL DATA:

Metal values from the 1.8 m mineralized section are summarized below:

Ni - 0.03 to 0.1%
Cu - nil to 0.35%
Zn - 0.01 to 0.05%
Au - not reported
Ag - not reported

CLASSIFICATION:

Vein type mineralization consisting of multiple veins.

REFERENCES:

Gilbert, H.P., Syme, E.C. and Zwanzig, H.V.
1980: Geology of the metavolcanic and volcaniclastic metasedimentary rocks in the Lynn Lake area; Manitoba Energy and Mines, Mineral Resources Division, Geological Paper GP80-1, 118 p.

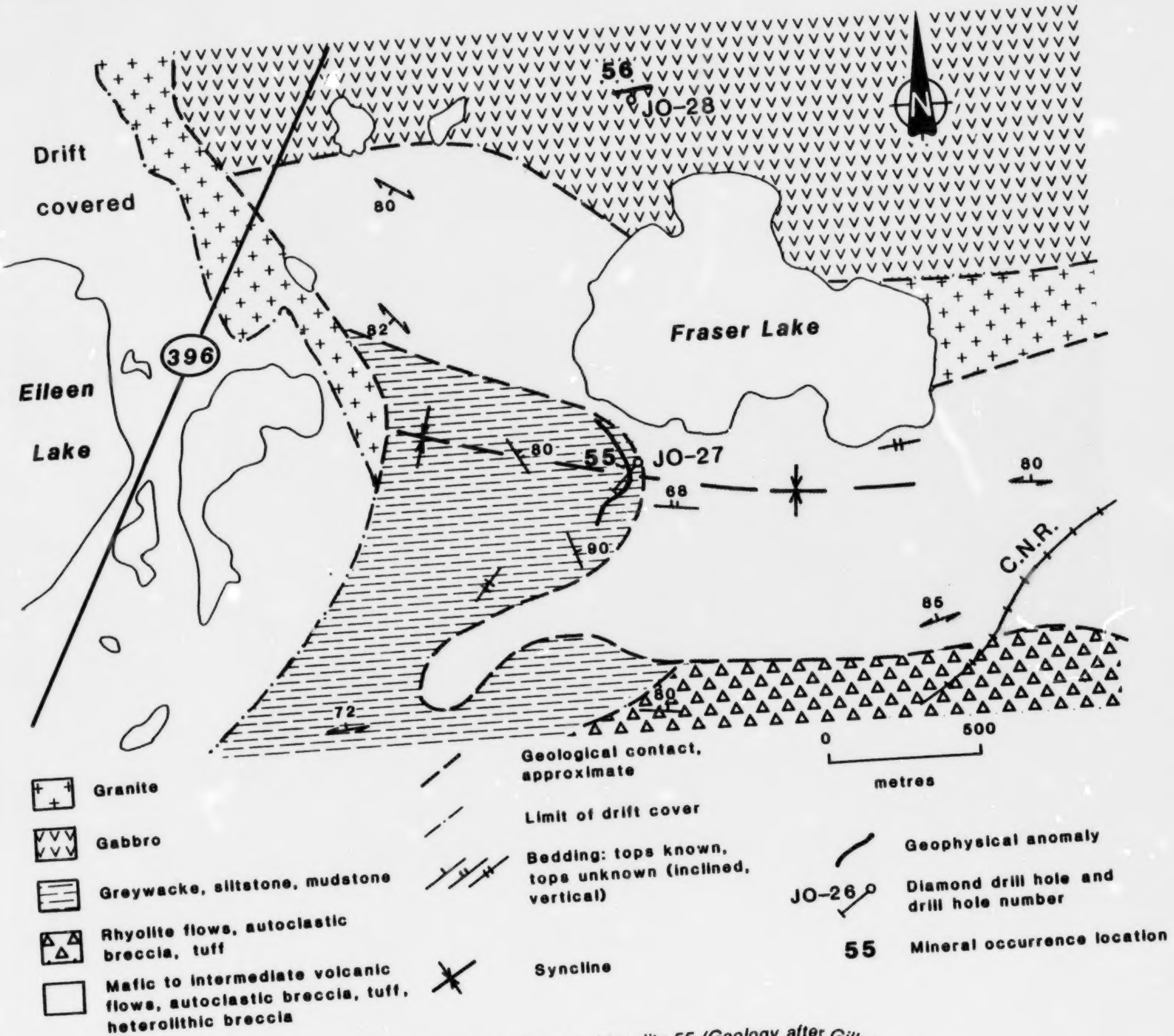

56
JO-28
Drift
covered
80
Fraser Lake
82
396
Eileen
Lake
80
55
JO-27
68
80
90
C.N.R.
85
80
72
0
500
metres
Granite
Gabbro
Greywacke, siltstone, mudstone
Rhyolite flows, autoclastic breccia, tuff
Mafic to intermediate volcanic flows, autoclastic breccia, tuff, heterolithic breccia
Geological contact, approximate
Limit of drift cover
Bedding: tops known, tops unknown (inclined, vertical)
Syncline
Geophysical anomaly
JO-26
Diamond drill hole and drill hole number
55
Mineral occurrence location

Figure 55-1: Geological setting and drill hole location at mineral locality 55 (Geology after Gilbert et al., 1980).

LOCATION: 55

NAME:

UTM: 6294401N 370516E

ACCESS: Via Hwy. 396 from Lynn Lake to Eileen Lake and traverse.

AREA: Southwest shore of Fraser Lake.

AIRPHOTO: A24299-48

EXPLORATION SUMMARY:

The ground was first staked in 1947 as part of the Fraser group of claims. In that year geological mapping and a magnetometer survey were carried out for International Mining Corp. There does not appear to have been any further exploration work at the occurrence until 1977-78 when an EM survey and drilling of one DDH were carried out (pers. comm., Sherritt Gordon Mines Ltd., 1985). The ground is held by LynnGold Resources Inc.

GEOLOGICAL SETTING:

The area is underlain by Wasekwan Group metasedimentary and metavolcanic rocks (Fig. 55-1) that form the north limb of a syncline (Gilbert *et al.*, 1980). The metasedimentary rocks include hornblende-bearing greywacke, biotite-bearing greywacke, siltstone and mudstone. The metavolcanic rocks include basalt flows and flow breccia (Gilbert *et al.*, 1980). The drill log from the diamond drill hole at the occurrence records tuff with intermediate composition in addition to greywacke and siliceous sedimentary rock (pers. comm., Sherritt Gordon Mines Ltd., 1985).

MINERALIZATION:

A siliceous sedimentary rock layer, 60 cm thick, contains 1 to 5% disseminated pyrrhotite and 1% disseminated pyrite. Some greywacke layers contain 1 to 2% pyrrhotite and pyrite.

GEOCHEMICAL DATA:

Metal values from the assays of drill core are summarized below:

Cu - nil to 0.02%
Zn - nil to 0.2%
Au - nil
Ag - nil to 0.9 g/t

CLASSIFICATION:

Disseminated mineralization not classified.

REFERENCES:

Gilbert, H.P., Syme, E.C. and Zwanzig, H.V.

1980: Geology of the metavolcanic and volcaniclastic metasedimentary rocks in the Lynn Lake area; Manitoba Energy and Mines, Mineral Resources Division, Geological Paper GP80-1, 118 p.

LOCATION: 56

NAME:

UTM: 6295535N 370746E

ACCESS: Via Hwy. 396 from Lynn Lake to small lake past the south end of Frances Lake and traverse.

AREA: 400 m north of small peninsula on northwest shore of Fraser Lake.

AIRPHOTO: A24299-47

EXPLORATION SUMMARY:

The ground was originally staked as part of the Mail group of claims surveyed in 1954. Sherritt Gordon Mines staff has conducted several geological, magnetic and EM surveys in the area and one DDH was drilled in 1977-78 (pers. comm., Sherritt Gordon Mines Ltd., 1985). The ground is held by LynnGold Resources Inc.

GEOLOGICAL SETTING:

According to geological maps of the Fraser Lake area, the drill hole should have been collared in gabbro (Fig. 55-1; Milligan, 1960; Emslie and Moore, 1961; Gilbert *et al.*, 1980). The drill log records 63 m of interlayered felsic tuff and felsic lapilli tuff with fragments up to 3 cm across; the hole was drilled vertically. The felsic volcanic rocks are probably a large xenolith in the gabbro.

MINERALIZATION:

In the drill hole there are several 0.6 to 1.2 m intersections of felsic tuff that contain 20 to 30% disseminated pyrite and pyrrhotite (pers. comm. Sherritt Gordon Mines Ltd., 1985).

GEOCHEMICAL DATA:

A summary of metal values obtained from assays from drill core samples is presented below:

Cu - nil to 0.18%
Zn - nil to 0.17%
Au - nil
Ag - nil to 1.2 g/t

CLASSIFICATION:

Disseminated mineralization not classified.

REFERENCES:

Emslie, R.F. and Moore, J.M. Jr.
1961: Geological studies of the area between Lynn Lake and Fraser Lake; Manitoba Department of Mines and Natural Resources, Mines Branch, Publication 59-4. p. 76 p.

Gilbert, H.P., Syme, E.C. and Zwanzig, H.V.
1980: Geology of the metavolcanic and volcaniclastic metasedimentary rocks in the Lynn Lake area; Manitoba Energy and Mines, Mineral Resources Division, Geological Paper GP80-1, 118 p.

Milligan, G.C.
1960: Geology of the Lynn Lake district, Manitoba; Manitoba Department of Mines and Natural Resources, Mines Branch, Publication 57-1, 317 p.

LOCATION: 57

NAME:
UTM: 6299720N 374944E
ACCESS: Via gravel road from Hwy. 397.

EXPLORATION SUMMARY:

None.

GEOLOGICAL SETTING:

The rocks at the old dump site are probably part of the felsic volcanic sequence that makes up the Southern Unit of the Lynn Lake Rhyolitic Complex (Baldwin, 1983). The rocks are mainly felsic pyroclastics and form a northeast-trending layered sequence (Fig. 57-1) approximately on strike with the Nicoba deposit (Locality 7).

MINERALIZATION:

Minor disseminated sulphide and trace gahnite occur in an extensive zone of garnet-chlorite alteration. The alteration occurs as masses of garnet and chlorite and as anastomosing veins and stringers of chlorite with and without garnet.

GEOCHEMICAL DATA:

None.

AREA: Old dump site 750 m north of Flag Lake.
AIRPHOTO: A24142-174

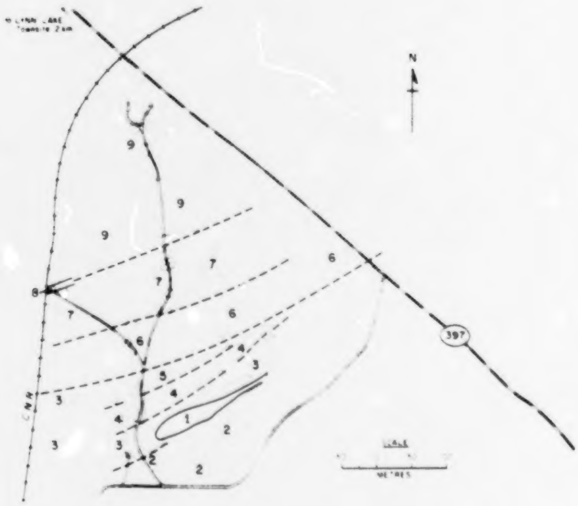
CLASSIFICATION:

Alteration zone associated with stratabound massive sulphide-type deposit; there is no known sulphide body. The alteration occurs at approximately the same stratigraphic level as the Nicoba deposit 1.75 km to the southwest. The garnet-chlorite rock displays cross-cutting relationships with unaltered felsic volcanic rocks.

REFERENCES:

Baldwin, D.A.
1983: Stratigraphic studies of felsic volcanic rocks associated with mineral occurrences in the Lynn Lake area, Manitoba; in Manitoba Energy and Mines, Mineral Resources Division, Report of Field Activities 1983, p. 88-93.

Fedikow, M.A.F. and Gale, G.H.
1982: Mineral deposit studies in the Lynn Lake area; in Manitoba Energy and Mines, Mineral Resources Division, Report of Field Activities 1982, p.44-53.


to LYNN LAKE Townsite 2 km
N
9
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9
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C N R
397
SCALE
METRES

Figure 57-1: Geology of old dump site (after Fedikow and Gale, 1982).

LOCATION: 58

NAME:

UTM: 7292346N 377637E

ACCESS: Via float plane from Lynn Lake and 100 m from southwest shore of McVeigh Lake or along winter road from Eldon Lake to McVeigh Lake and follow west shore of McVeigh Lake to trail leading to the occurrence.

EXPLORATION SUMMARY:

The area was first staked in 1939 as part of the Faust claim group. The claims were assigned to Sherritt Gordon Mines Ltd. in 1945 as part of a 21 year lease; the lease was cancelled in 1966. One vein has been trenched and two have been drilled but results of this work do not appear to have been recorded for assessment purposes.

GEOLOGICAL SETTING:

The area is underlain by a syenite phase of a large plutonic body that intruded mafic volcanic flow rocks (Bateman, 1945; Milligan, 1960; Gilbert *et al.*, 1980). Three northeasterly trending quartz veins occupy fractures within the syenite (Fig. 58-1).

MINERALIZATION:

The mineralization consists of irregularly distributed disseminated sulphide in the quartz veins. The sulphide mineralogy comprises pyrite, chalcopyrite, sphalerite and galena.

GEOCHEMICAL DATA:

Two samples were collected from each of the quartz veins. The samples were selected to be representative of the upper (Samples labelled A) and lower (Samples labelled B) range of sulphide-bearing quartz. The geochemical results are tabulated below.

Vein A

Sample	Au	Ag	Cu	Zn	Pb	Mo
A	12.1	5	90	19	13	85
B	0.31	1	72	20	10	6

Vein B

Sample	Au	Ag	Cu	Zn	Pb	Mo
A	1.6	203	66	58	1.55%	29
B	tr	1	36	36	2	1

AREA: 100 m from southwest shore of McVeigh Lake.

AIRPHOTO: A24142-177

Vein C

Sample	Au	Ag	Cu	Zn	Pb	Mo
A	0.31	123	63	7	0.55%	77
B	tr	2	69	91	137	1

Au - g/tonne

Ag - ppm

Ag*- g/tonne

Cu, Zn, Pb, Mo - ppm unless otherwise indicated

CLASSIFICATION:

Vein type mineralization. Each vein is a single quartz vein that occupies a fracture in intrusive rocks.

REFERENCES:

Bateman, J.D.

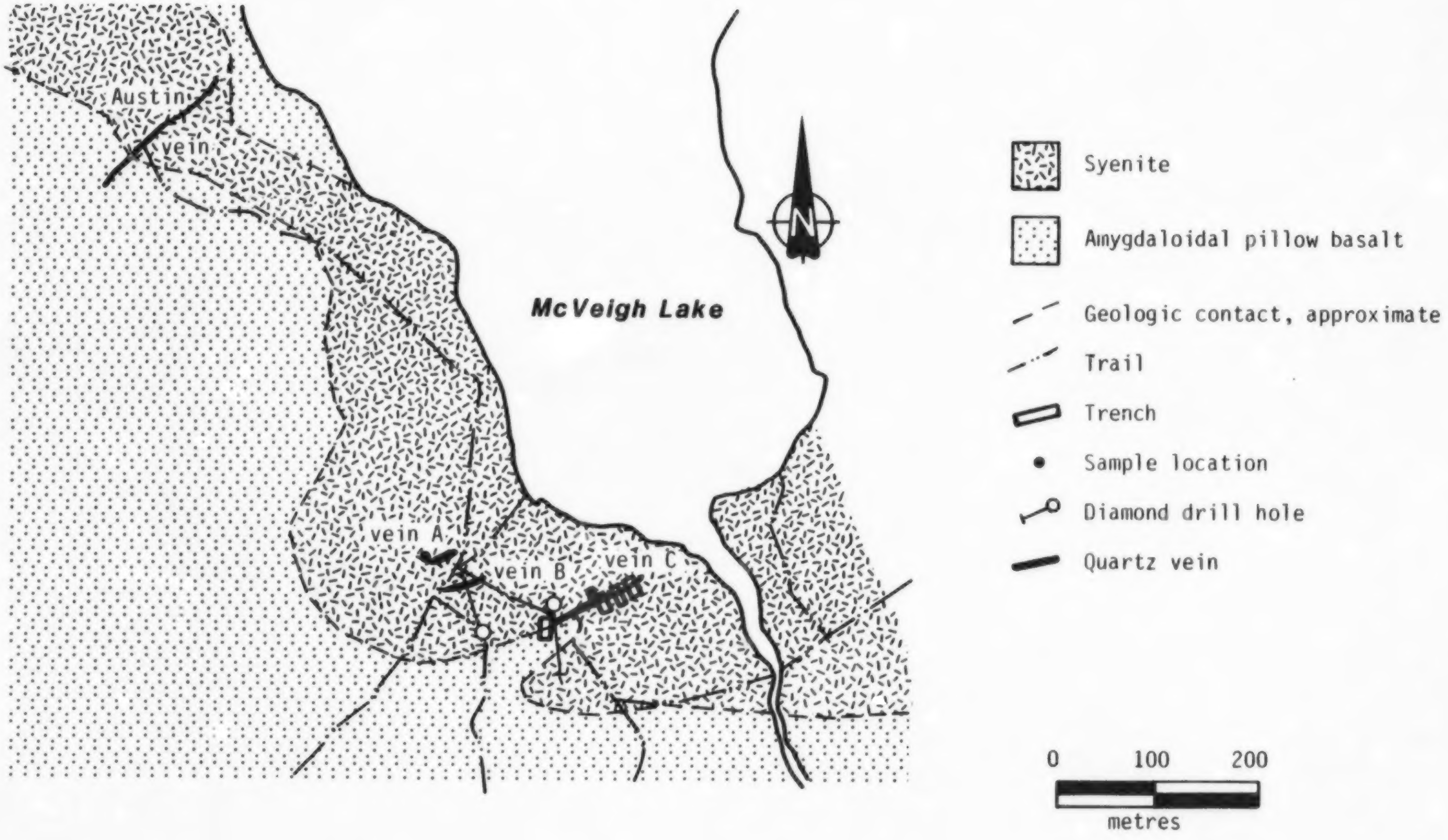
1945: McVeigh Lake area, Manitoba; Canada Department of Mines and Resources, Mines and Geology Branch, Geological Survey Paper 45-14, 34 p.

Gilbert, H.P., Syme, E.C. and Zwanzig, H.V.

1980: Geology of the metavolcanic and volcaniclastic metasedimentary rocks in the Lynn Lake area; Manitoba Energy and Mines, Mineral Resources Division, Geological Paper GP80-1, 118 p.

Milligan, G.C.

1960: Geology of the Lynn Lake district, Manitoba; Manitoba Department of Mines and Natural Resources, Mines Branch, Publication 57-1, 317 p.



Austin vein
McVeigh Lake
vein A
vein B
vein C
N
Syenite
Amygdaloidal pillow basalt
Geologic contact, approximate
Trail
Trench
Sample location
Diamond drill hole
Quartz vein
0
100
200
metres

Figure 58-1: Geological setting and trench locations at mineral locality 58 (Geology after Bateman, 1945).

MAPS
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